ORDER NO. VRD0204017C2

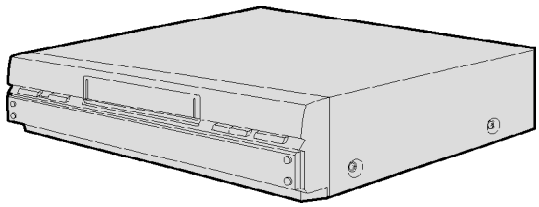
Service Manual

Video Cassette Recorder

Panasonic S-VHS VHS PAL 625 Hi-Fi

NV-HS830EG / NV-HS830B / NV-HS830EC / NV-HS830EE

Z-MECHANISM



SPECIFICATIONS

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ITEM	SPECIFICATION		ITEM	SPECIFICATION
POWER	SOURCE: 220-240 V AC 50/60 Hz		VIDEO	OUTPUT: EURO AV (AV1/AV2) Connector (21 pin x 2) 1.0 Vp-p, 75 Ω terminated S-VIDEO OUT Connector (S4P) 1.0 Vp-p, 75 Ω terminated VIDEO OUT Connector (Phono type) 1.0 Vp-p, 75 Ω terminated
	CONSUMPTION: 20 watts COMSUMPTION WHEN IN STANDBY MODE: Approx. 3W (NV-HS830EG/EC/EE)			
RECORDING SYSTEM	2 rotary heads, helical scanning system		AUDIO	HEAD: 1 Stationary head (Normal-mono only) 2 channels (Hi-Fi Sound-Stereo)
	PAL			INPUT: EURO AV (AV1/AV2) Connector (21 pin x 2) More than -6dBV (500 mV), 10 kΩ AUDIO IN (AV3:FRONT) Connector (Phono type) More than -6dBV (500 mV), 10 kΩ
TV TUNER SYSTEM	NV-HS830EG/EC	VHF: CHF2-CHF12 CHA-CHH2 [ITALY] (PAL/SECAM B) UHF: CH21-CH69 (PAL/SECAM G) CATV: CHS01-CHS41 (PAL/SECAM B)		OUTPUT: AUDIO OUT Connector (Phono type) -6 dBV (500mV), Less than 1kΩ EURO AV (AV1/AV2) Connector (21 pin x 2) -6 dBV (500mV), Less than 1kΩ
	NV-HS830B	UHF: CH21-CH68 (PAL I)	TAPE FORMAT	S-VHS/VHS Cassette Tape (Tape width 12.7 mm)
	NV-HS830EE	VHF: CHE2-CHE12 (PAL/SECAM B) CHR1-CHR12 (SECAM D) UHF: CH21-CH69 (PAL/SECAM G, SECAM K, PAL I) CATV: CHS01-CHS41 (PAL/SECAM B) 44MHz-470MHz (SECAM D)	TAPE SPEED	SP:23.39 mm/s LP: 11.695 mm/s EP:7.798 mm/s Record/Playback Time: SP:4 hours with 240 min. type tape LP:8 hours with 240 min. type tape EP:12 hours with 240 min. type tape FF/REW Time: 60 sec. with 180 min. type tape
RF OUT SYSTEM	NV-HS830EG/EC	UHF: CH21-CH69 (PAL/SECAM G) 71 ± 3 dBμ, 75 Ω close		
	NV-HS830B	UHF: CH21-CH68 (PAL I) 71 ± 3 dBμ, 75 Ω close		
	NV-HS830EE	UHF: CH21-CH69 (PAL/SECAM G, SECAM K, PAL I) 71 ± 3 dBμ, 75 Ω close	OPERATING TEMPERATURE	5°C - 40°C
VIDEO	HEADS: 4 rotary heads 1 pair for recording and playback (L-R heads) 1 pair for trick play (L'-R' heads)		OPERATING HUMIDITY	35% - 80%
	INPUT: EURO AV (AV1/AV2) Connector (21 pin x 2) 1.0 Vp-p, 75 Ω terminated S-VIDEO IN (AV3:FRONT) Connector (S4P) 1.0 Vp-p, 75 Ω terminated VIDEO IN (AV3:FRONT) Connector (Phono type) 1.0 Vp-p, 75 Ω terminated		DIMENSIONS	430 (W)×87(H)×282(D) mm
			WEIGHT	3.5 kg
			STANDARD ACCESSORIES	1 pc. DIN-RF Cable 1 pc. AC Mains Lead 1 pc. Infra-red Remote Controller

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic

1. INTRODUCTION

This service manual contains technical information which will allow service personnel to understand and service this model.
If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.

Note:

1. **Adjustment procedures, Disassembly Procedures and Assembly Procedures for Mechanism Chassis are separate volume from this service manual. / Please refer to the service manual for Z-Mechanism Chassis. (Order No. VRD9802005C2)**
2. **The Model No. is indicated on the Schematic Diagram and Circuit Board Diagrams as follows.**

Model No.	Indication Mark
NV-HS830EG	(EG)
NV-HS830B	(B)
NV-HS830EC	(EC)
NV-HS830EE	(EE)

2. GENERAL DESCRIPTIONS

2.1. SERVICE CAUTION

2.1.1. REPLACING IC6002/EEPROM

When the EEPROM: IC6002 is replaced, applicable model code, option code, tuning channel data and electrical adjustment data will not be available.
Therefore, enter and/or adjust the necessary data after replacing IC6002 by referring following procedure.

STEP1.REPLACE THE IC6002

1. **Take a note that stored TV broadcast channels.**
2. **Remove the C.B.A. with Mechanism unit by referring the Disassembly procedure.**

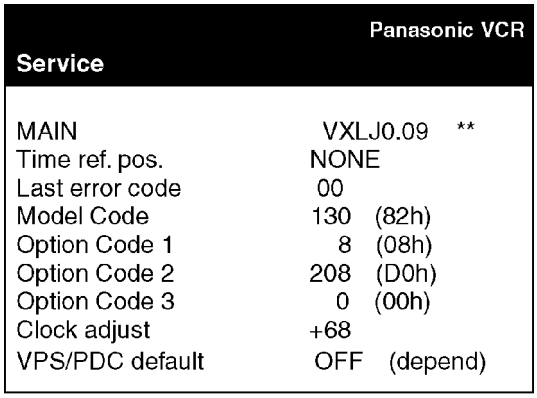
3. Disconnect the AC plug and replace the IC6002.

STEP2.INPUT THE MODEL & OPTION CODE

1. Set up the applicable model code and option code by ordering the following table.

PROCEDURE	F.I.P. DISPLAY
Turn on the Service Mode **1.Press the FF key and the EJECT key simultaneously for more than 3 seconds.**	
Activate the Service Mode 2 **2.While keep pressing FF key, press the EJECT key in twice.**	
Activate the Entering Mode. **3.Press the EJECT key for more than 3 seconds.**	
Set the Mode 2. **4.Press the CH UP key in twice.**	
Display the Setting Code. **5.Press the POWER Button to turn the power on.**	 **(Colon starts flashing)**
Enter the Model and Option Code. **6.Service Screen is displayed on the monitor.** **7.Set the applicable Model and Option code by using REW, PLAY, STOP and FF keys on theRemote Controller. (See Fig.S1 & S2)**	
Exit from Service Mode. **8.Press the POWER Button to turn the power off.** **9. Press FF and EJECT keys simultaneously in 6 times.**	 **(Normal Indication)**

Fig.S1 Service Secreen (sample)



Model No.	Model Code	Option Code 1	Option Code 2	Option Code 3
NV-HS830EG	129 (81h)	8 (08h)	208 (D0h)	0 (00h)
NV-HS830B	131 (83h)	40 (28h)	208 (D0h)	0 (00h)
NV-HS830EC	130 (82h)	8 (08h)	208 (D0h)	0 (00h)
NV-HS830EE	166 (A6h)	8 (08h)	210 (D2h)	0 (00h)

Fig. S2 Model Code & Option Code

NOTE:

1. **Tune the TV Broadcasting channels by referring the memo.**
2. **Since all electrical adjustment data is still not available, perform the Electrical Adjustment continuously.**

WHEN REPLACING THE MAIN C.B.A.

Since the user's Tape Library data is stored in IC6002;EEPROM, swap the EEPROM taking from Original Main C.B.A. and mount it onto the New Main C.B.A. to keep maintain the user's Library Data by ordering the following procedure.

1. **Take the IC6002; EEPROM from the new Main C.B.A. (to be used as replacement.) and keep it aside.**
2. **Take the IC6002; EEPROM from the original Main C.B.A. (to be replaced).**
3. **Mount the EEPROM being taken from original C.B.A. to the new**

Main C.B.A.(to be used as replacement.)

4. Install the new Main C.B.A. to the VCR.

When ordering the above procedure, setting of the model code, option code, tuning channel can be skipped. / However, all electrical adjustment data is unique value in accordance with a deck, perform the Electrical Adjustment continuously.

2.1.2. CYLINDER UNIT REPLACEMENT

1. CYLINDER UNIT REPLACEMENT

A. Remove the mechanism unit from MAIN C.B.A./Chassis by referring "SECTION 2. Disassembly Procedure".

B. Remove the 3 screws (A) of the CYLINDER UNIT with a screw driver.

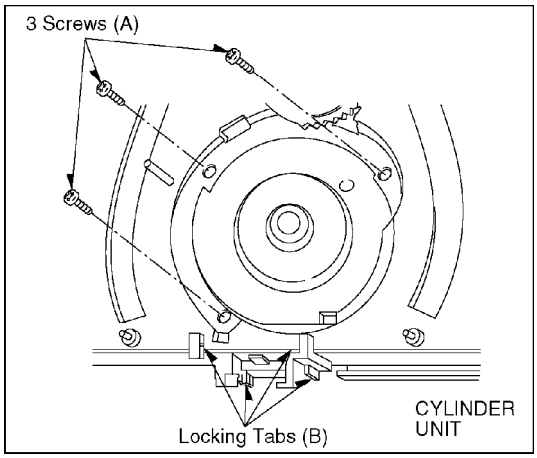
C. Unlock the 4 locking tabs (B) and disconnect the Cylinder fiexible card from the FPC Holder.

D. Remove the CYLINDER UNIT.

CAUTION:

Handle the Cylinder fiexible card with care. When it damaged, you should replace whole Cylinder unit.

Fig. S3



2. UPPER CYLINDER DISASSEMBLY

A. Remove 2 screws (A).

B. Remove the Cylinder Stator Unit.

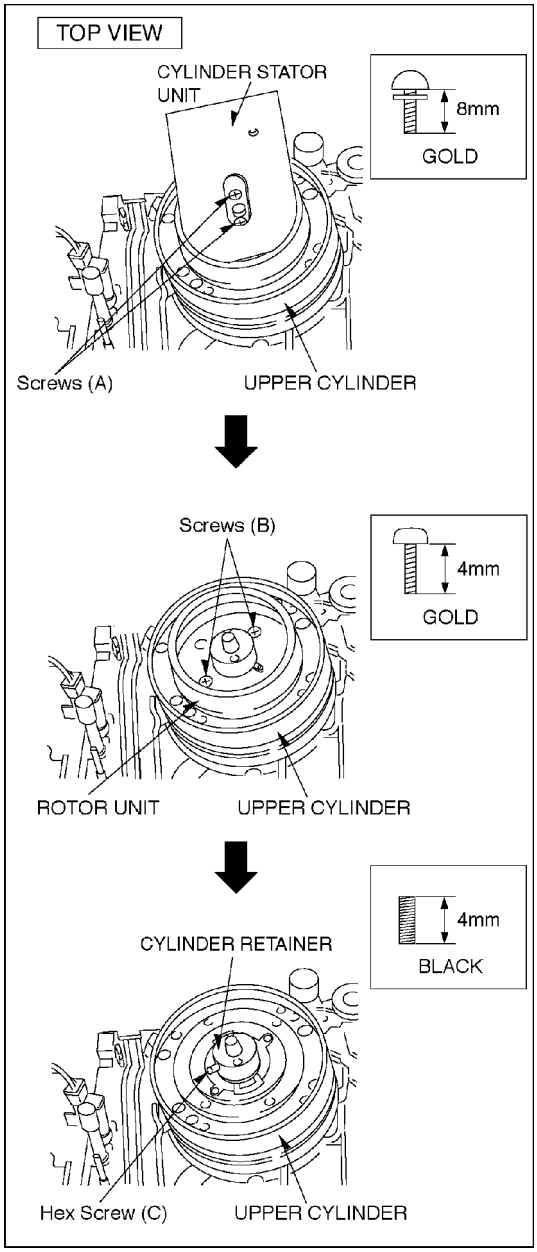
C. Remove 2 screws (B).

D. Remove the Cylinder Rotor Unit.

E. Loose Hex screw (C) (1.5 mm) and remove the CYLINDER RETAINER.

F. Remove the Upper Cylinder.

Fig. S4



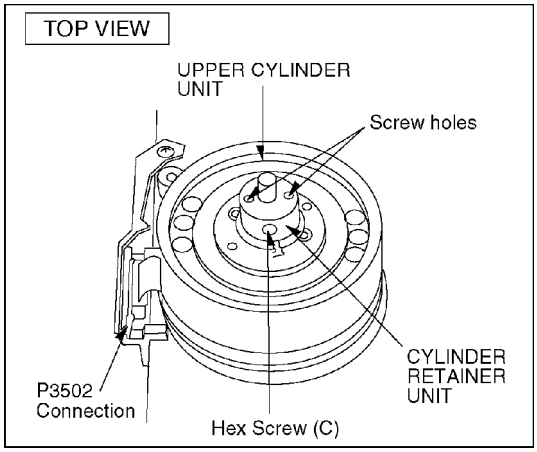
3. UPPER CYLINDER ASSEMBLY

When reassembling, perform the steps in the reverse order.

Notes:

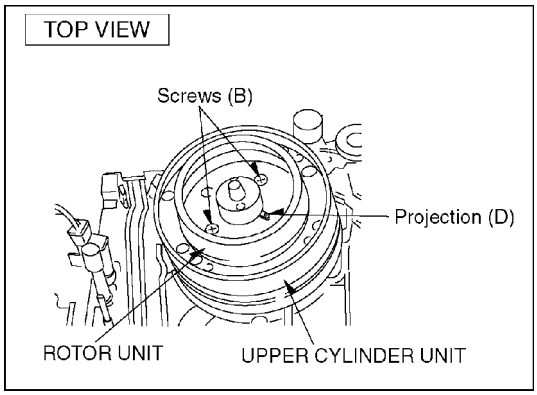
1. **Install the Cylinder Retainer so that the 2 holes on top of the Cylinder Retainer are at right angles with the P3502 Connection.**
2. **Tighten the Hex screw (C) (1.5 mm) while pressing down on top of the Cylinder Retainer.**

Fig. S5



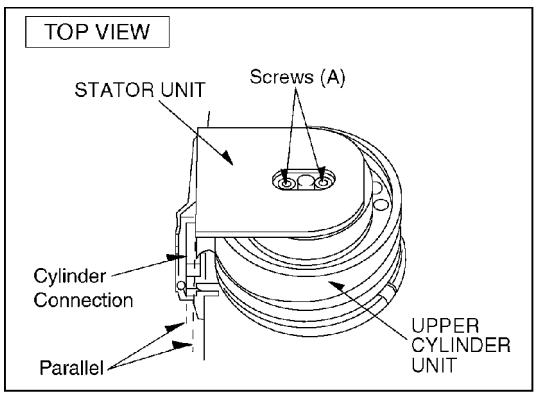
3. **Install the Cylinder Rotor Unit so that the inner hole of the Cylinder Rotor Unit fits to the small projection (D) on top of the Upper Cylinder.**
4. **Tighten 2 screws (B).**

Fig. S6



5. **install the Cylinder Stator Unit.**
6. **Tighten 2 screws (A).**

Fig. S7



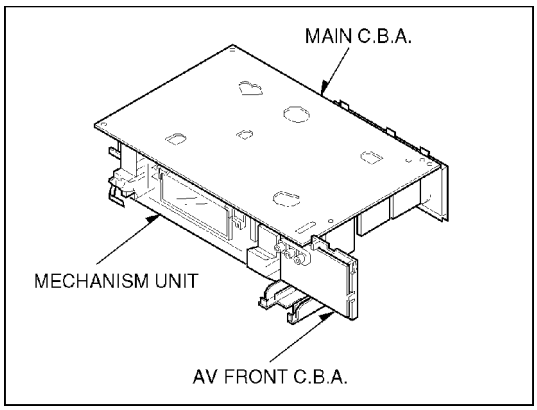
7. **Confirm the PG SHIFTER ADJUSTMENT with the alignment tape**

(PAL: VFJ8125H3F) and adjust it if necessary.

2.1.3. CHECKING OF MAIN C.B.A.

When servicing the MAIN C.B.A., take out the MAIN C.B.A. and mechanism from the frame and turn over.

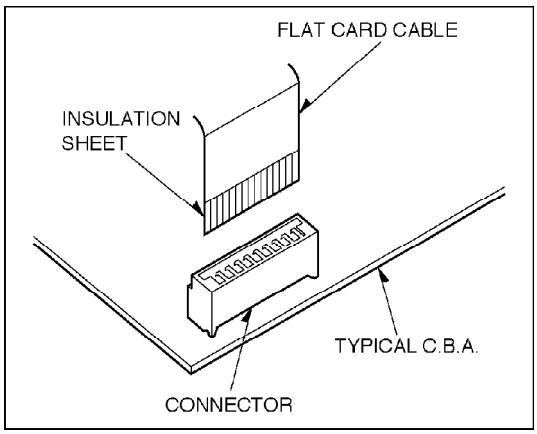
Fig. S8



2.1.4. FLAT CARD CABLE INSTALLATION

When installing the Flat Card Cable on the connector, install the Flat Card Cable with the cable contacts facing the connector contacts.

Fig. S9



2.2. REMOVAL OF CASSETTE TAPE

There are 2 ways to remove a cassette tape.

1. Service Information Display Operation

A. Press the FF and EJECT keys simultaneosly for 3 seconds and set the Service Mode 7.

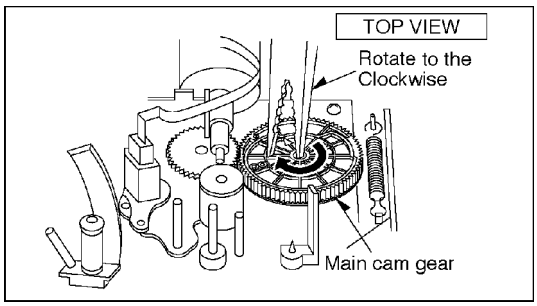
B. Press STOP key in order to rotate the Loading Motor for unloading operation. (Pay an attention of tape slack)

2. Manual Operation

A. Disconnect the AC Mains Lead and remove the Top Panel.

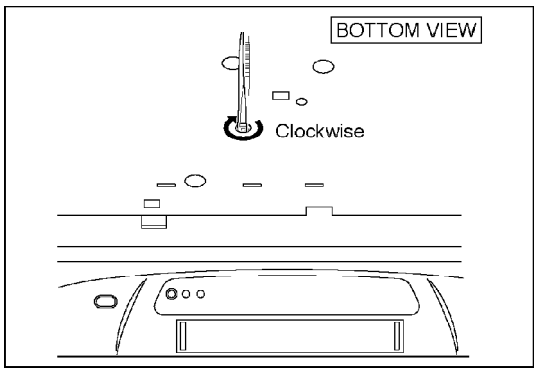
B. Rotate the Main Cam Gear clockwise until the Loading Posts move to fully unloaded position as shown in Fig. S10 . (Tape is remaining)

Fig. S10



C. Rotate the Capstan Motor clockwise from the bottom side to take up the tape.

Fig. S11



D. Rotate the Main Cam Gear clockwise until the cassette tape is ejected.

2.3. INTRODUCTION OF VIDEO HEAD CLEANING CASSETTE / (POLISHING TYPE)

1. **We are pleased to introduce Panasonic Video Head Cleaning Cassette, VFK0923FT [for service purposes] and VFK0923FSE [for end users] for all VHS/SVHS VCP and VCR.**
2. **These cleaning cassettes are exclusive removing the hard and sticky clogging on video heads.**
3. **These improve the efficiency of video head cleaning service and shortening cleaning time for end users.**

VFK0923FT (For Service usage)	
Type of Cassette	**Full VHS Cassette**
Cleaning Time	**10 Seconds/Time**
Tape Length	**20 m**
Usability in a Path	**180 Times**

VFK0823FSE (For end users)	
Type of Cassette	**Full VHS Cassette**
Cleaning Time	**10 Seconds/Time**
Tape Length	**3.34 m**
Usability in a Path	**30 Times**

VFK0823FSE (For end users)

Note:

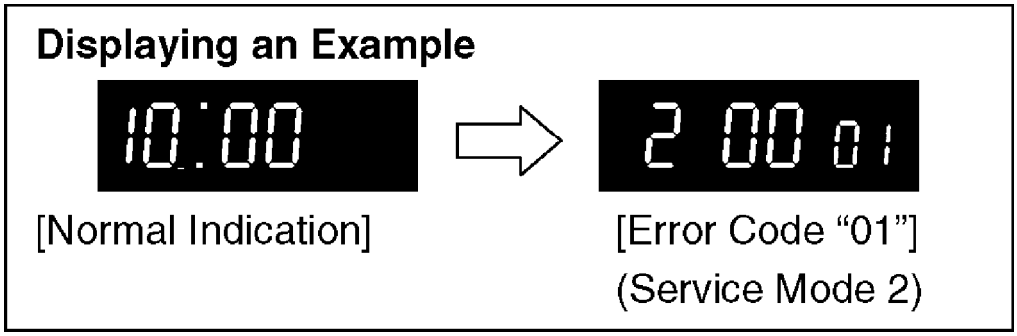
The tape material itself is the same in both types.

2.4. SELF-DIAGNOSIS RESULT DISPLAY

The "SELF-DIAGNOSIS RESULT DISPLAY & MEMORY function is built in this VTR.
It means that when the VCR detects undesirable condition, it can be displayed a “Error code (Two numbers from the left)” with Service Mode 2.
Since the "Error code" is stored in the EEPROM, it can be displayed although after disconnected the AC leads. It can be displayed with Service Mode 2.
(If a second error had been detected, only the most recent error can be displayed.)
For more details, refer to the Service Manual for Z-Mechanism Chassis Order number VRD9802005C2.

NOTE:

To erase the memorized “ERROR” code, press the FF and EJECT keys simultaneously for more than 5 seconds.



INDICATION	CAUSE	REMEDY/CHECK
01	After cylinder lock is detected, the cylinder does not start rotating again even after tape unloading.	Check the cylinder motor drive circui
02	Cassette tape is not wound up during the tape unloading except EJECT mode.	Check the capstan motor drive circui
03	Mechanism locks during mode transition except EJECT mode.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment. 3. Check the mode switch.
04	Mechanism locks during tape unloading.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment.
06	Mechanism locks after tape unloading in EJECT mode.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment for cass
07	During recording mode, recording signal is less than the normal condition.	Protection of the over-current flowin transistor which produces the power for recording mode.
08	Recording circuit works except recording mode.	Check the recording circuit.
16	Cylinder lock detection.	Check the cylinder unit and the cylin drive circuit.
17	Supply reel mechanism lock detection	Check the supply reel mechanism an supply reel circuit.
18	Take-up reel mechanism lock detection	Check the Take-up reel mechanism a Take-up reel circuit.
2*	PG shifter automatic adjustment error.	Check the servo/system control circu cylinder unit.

Fig. T1 Self-Test indication Display

2.5. CAUTION FOR AC MAINS LEAD (NV-HS830B)

3. ADJUSTMENT PROCEDURES

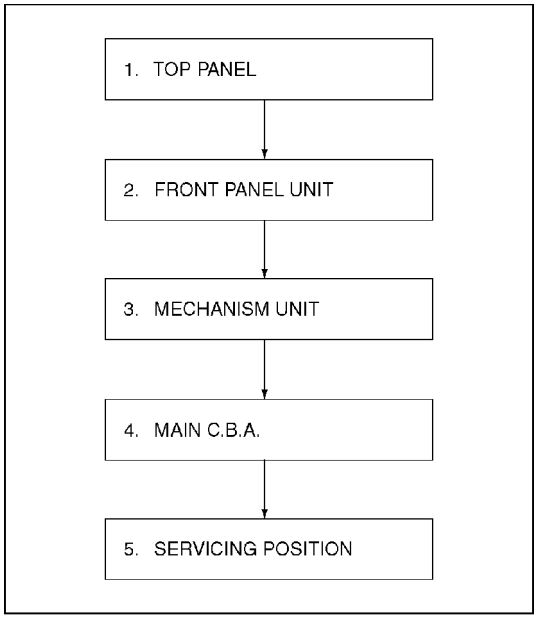
3.1. DISASSEMBLY METHOD

3.1.1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembly steps of the cabinet parts and the circuit boards in order to find the necessary items for servicing.

When reassembling, perform the steps in the reverse order.

Fig. D1

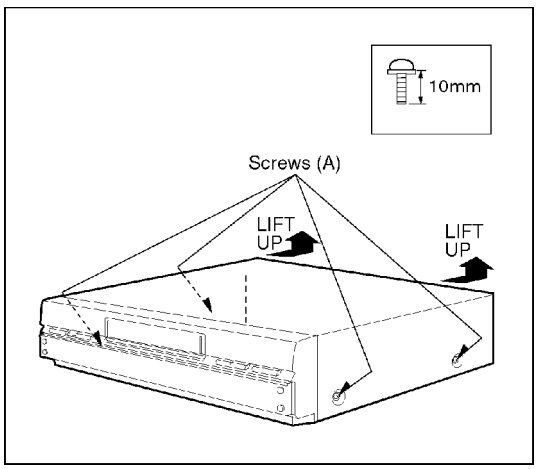


3.1.2. DETAIL OF DISASSEMBLY METHOD

1. REMOVAL OF THE TOP PANEL

Remove	**4 Screws (A)**

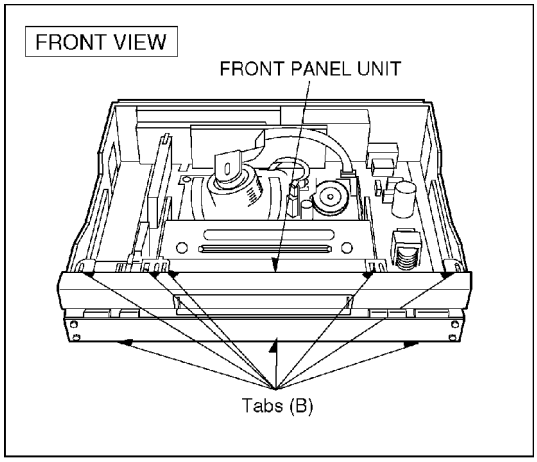
Fig.D2



2. REMOVAL OF THE FRONT PANEL UNIT

Unlock	**8 Tabs (B)**

Fig. D3



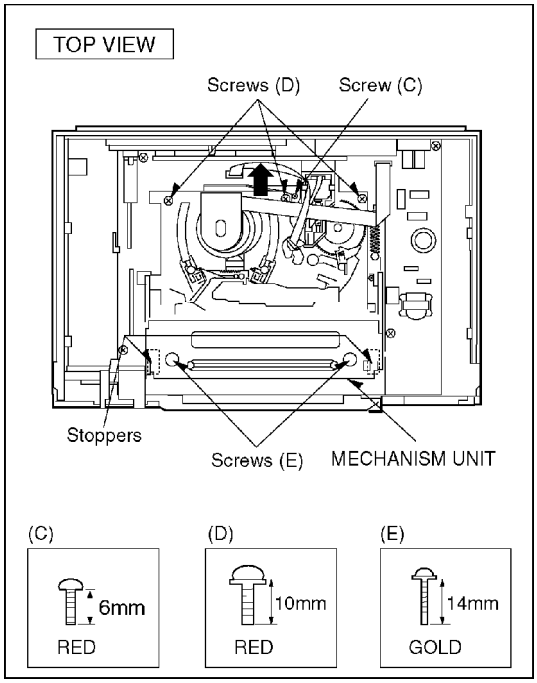
3. REMOVAL OF THE MECHANISM UNIT

Remove	**Screw (C)**
Remove	**3 Screws (D)**
Remove	**2 Screws (E)**

Note:

1. **Keep pressing 2 stoppers on Cassette Holder Plate and Press Cassette Holder Plate to the rear.**
2. **Remove the Mechanism Unit after bend the Cylinder Shield in the direction of the arrow.**

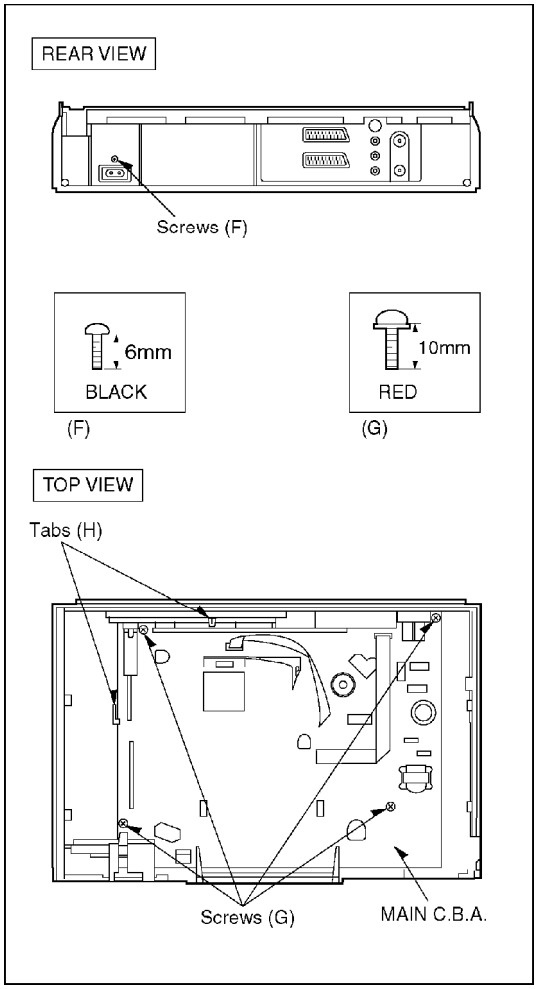
Fig. D4



4. REMOVAL OF THE MAIN C.B.A.

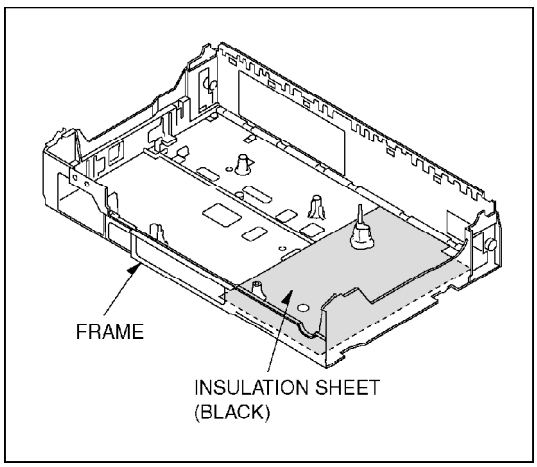
Remove	**Screw (F)**
Remove	**4 Screws (G)**
Unlock	**2 Tabs (H)**

Fig. D5



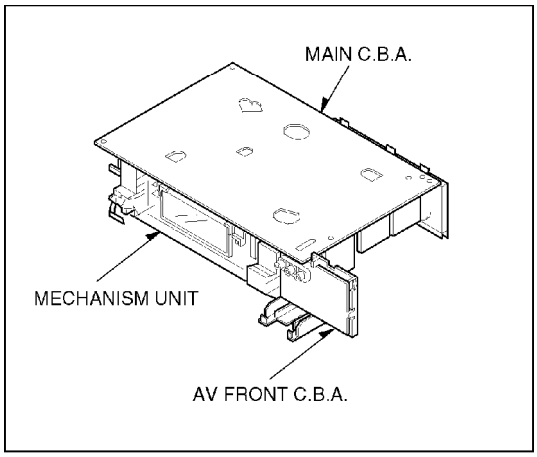
NOTE:
Before mounting the MAIN C.B.A. onto the frame, be sure to confirm that the insulation sheet is mounted on the frame as shown in Fig. D6 .

Fig. D6



5. SERVICING POSITION

Fig. D7



3.2. MECHANICAL ADJUSTMENT PROCEDURES

Refer to the Service Manual for Z-Mechanism Chassis. / (Order No. VRD9802005C2)

3.3. ELECTRICAL ADJUSTMENT PROCEDURES

3.3.1. TEST EQUIPMENT

The following equipments are required for Electrical Adjustments.

1. Dual-Trace Oscilloscope
   - Voltage Range: 0.005-5V/div
   - Frequency Range: DC-35MHz
   - Probes: 10:1 / 1:1
2. Frequency Counter
   - Frequency Range: 0-10MHz
   - Probes: 1:1
3. Universal Counter
4. Digital Volt Meter (D.V.M.)
5. Video Sweep Generator
6. Sinewave Generator
7. Video Pattern Generator
8. Monitor TV
9. DC Power Supply
10. VHS/S-VHS Blank Tape
11. VHS Alignment Tape

- Parts No.: VFJ8125H3F(PAL)

3.3.2. VCR SETTING

When no indication in the procedure, set each selector as follows.

1. TAPE SPEED: SP

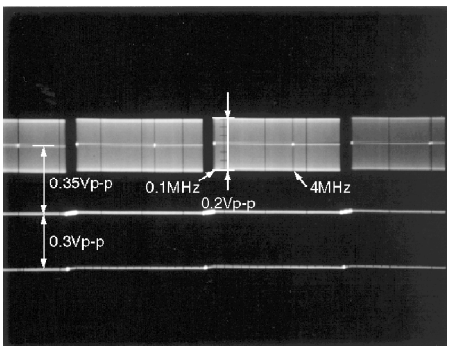
2. CHANNEL: AV1/AV2/AV3
(Set to signal input terminal number)

3. S-VHS SW: ON

3.3.3. ADJUSTMENTS

ITEM	TP	ADJ.	MODE	INPUT	TAPE	M. EQ.	SPEC	REMARKS
PG SHIFTER ADJUSTMENT	---	---	PLAYBACK	---	ALIGNMENT TAPE (PAL)	---	---	Refer to procedure as shown in Fig. E5.
S-VHS FREQUENCY RESPONSE ADJUSTMENT	VIDEO OUT (TP3021)	---	SP/LP PLAYBACK (SELF-REC)	VIDEO SWEEP (See Fig. E1)	S-VHS BLANK TAPE	OSCILLO SCOPE/ VIDEO SWEEP GENERATOR	SP:-4.5+-1(dB) (50~70%) LP:-6.0+-1(dB) (40~60%) (See Fig.E2)	Refer to the procedure as shown in Fig. E6.
VHS FREQUENCY RESPONSE ADJUSTMENT	VIDEO OUT (TP3002)	---	SP/LP PLAYBACK (SELF-REC)	VIDEO SWEEP (See Fig. E3)	VHS BLANK TAPE	OSCILLO SCOPE/ VIDEO SWEEP GENERATOR	SP: 0+-1 (dB) (90~110%) LP: 0+-1 (dB) (90~110%) (See Fig. E4)	Refer to the procedure as shown in Fig. E7.

Fig.E1



CONDITION: BURST SIGNAL OFF / 75ohm TERMINATED

Fig.E2

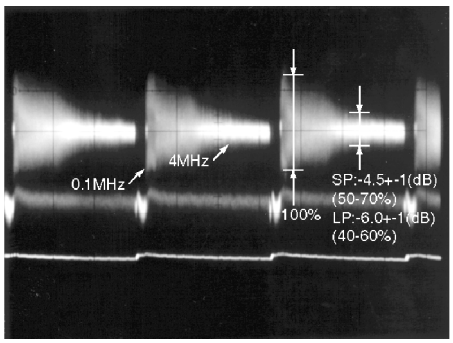
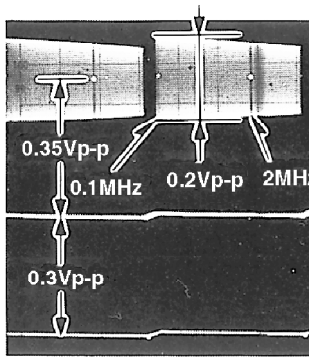
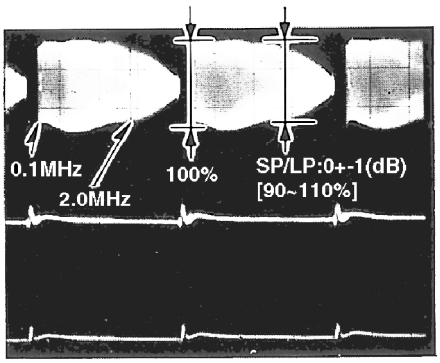


Fig.E3



CONDITION: BURST SIGI
75ohm TERMIN

Fig.E4



3.3.4. PG SHIFTER ADJUSTMENT / (AUTOMATIC)

PROCEDURES	FIP DISPLAY
Press the FF and EJECT Keys simultaneously for 3 seconds.	
Press the FF and EJECT Keys simultaneously twice.	
Press the EJECT key for 3 seconds.	
Press the CH UP key once.	
Insert the Alignment cassette tape. (PAL:VFJ8125H3F)	
When the sequence of the automatical adjustment has been terminated, the following action has been made. *SUCCEED: The cassette tape is ejected. *ERROR : The "F2"is displayed on the FIP. (Check the Servo/Syscon circuit and Cylinder unit.)	
Release the Service mode by pressing the EJECT and FF keys simultaneously in 6 times until the FIP becomes normal indication.	

Fig. E5

3.3.5. S-VHS VIDEO FREQUENCY RESPONSE ADJUSTMENT

PROCEDURES	FIP DISPLAY
Set the S-VHS SW to ON. / Insert the S-VHS BLANK TAPE. / Input the Video sweep signal (See Fig. E1) to AV3 (S-VIDEO IN) and record it in SP and LP.	
Press the FF and EJECT Keys simultaneously for 3 seconds.	
Press the FF and EJECT Keys simultaneously twice.	
Press the EJECT key for 3 seconds.	
Press the CH UP and/or CH DOWN key until "11" is displayed on FIP.	
Insert the Self-recorded tape and playback it. (SP/LP mode)	
Connect the Oscilloscope to: *CH1....Video Out (TP3021). *CH2....V.FREQ.(TW6002)	
Press the "4" key on the remote controller. (Confirm that TW6002 becomes high(2.5V)).	
Adjust the Frequency response by pressing the "2"(increase) and/or "8"(decrease) key on the Remote Controller. (See Fig.E2)	
Store the Adjusted value by pressing the "5" key on the Remote Controller.	
Release the Service mode by pressing the EJECT and FF keys simultaneously in 6 times until the FIP becomes normal indication.	

Fig. E6

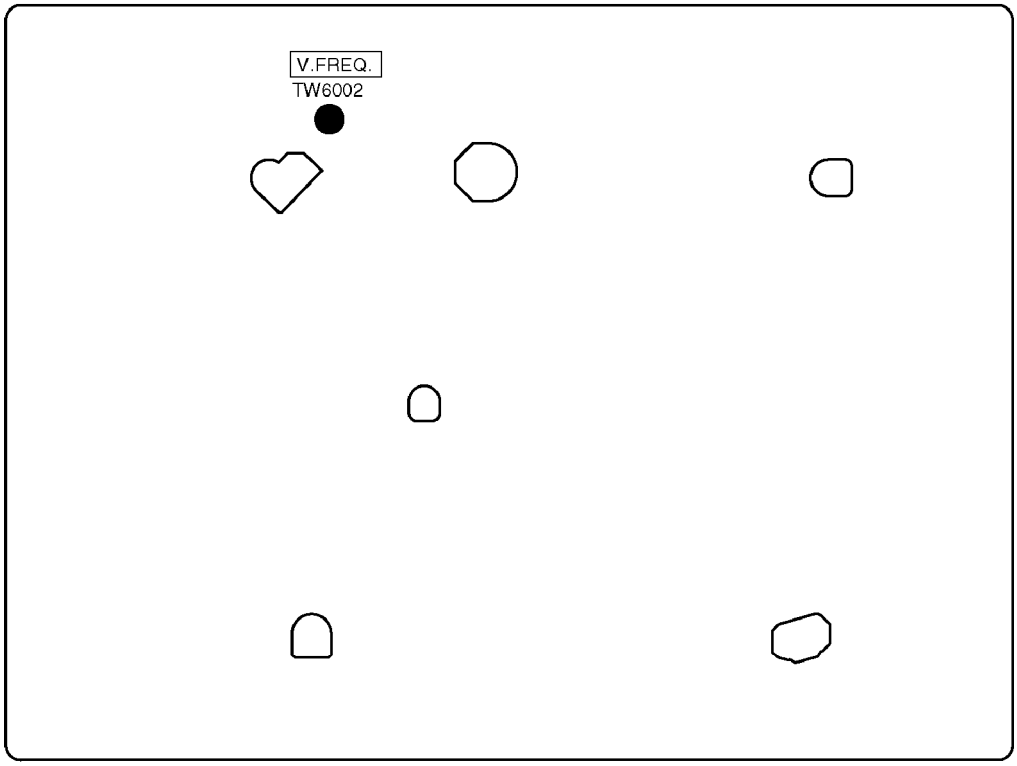
3.3.6. VHS VIDEO FREQUENCY RESPONSE ADJUSTMENT

PROCEDURES	FIP DISPLAY
Set the S-VHS SW to OFF. / Insert the VHS Blank Tape. / Input the Video sweep signal (See Fig. E3) to AV1 (VIDEO IN) and record it in SP and LP.	
Press the FF and EJECT Keys simultaneously for 3 seconds.	
Press the FF and EJECT Keys simultaneously twice.	
Press the EJECT key for 3 seconds.	
Press the CH UP and/or CH DOWN key until "11" is displayed on FIP.	
Insert the Self-recorded tape and playback it. (SP/LP mode)	
Connect the Oscilloscope to: *CH1....Video Out (TP3002). *CH2....V.FREQ.(TW6002)	
Press the "4" key on the remote controller. (Confirm that TW6002 becomes high(2.5V)).	
Adjust the Frequency response by pressing the "2"(increase) and/or "8"(decrease) key on the Remote Controller. (See Fig.E4)	
Store the Adjusted value by pressing the "5" key on the Remote Controller.	
Release the Service mode by pressing the EJECT and FF keys simultaneously in 6 times until the FIP becomes normal indication.	

Fig. E7

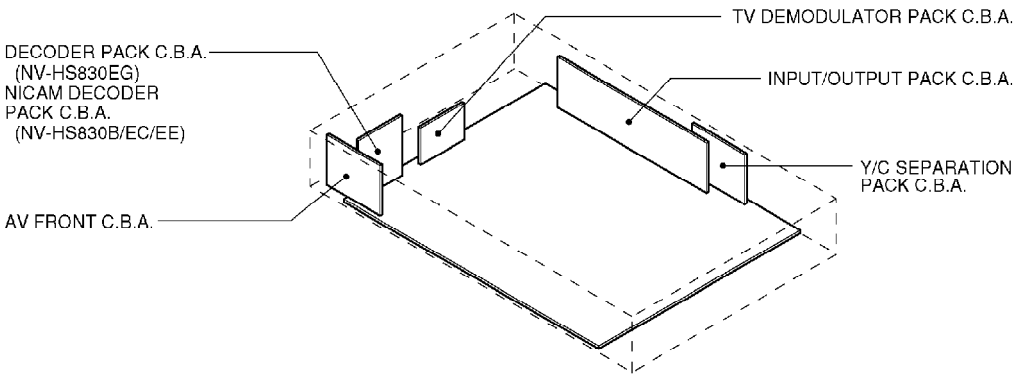
3.3.7. LOCATION OF TEST POINTS & CONTROLS

MAIN C.B.A.



INPUT/OUTPUT PACK C.B.A.

3.3.8. CIRCUIT BOARD LAYOUT



4. ABBREVIATIONS

5. INPUT/OUTPUT CHART

5.1. INPUT/OUTPUT CHART FOR IC6001

Fig. MP1

Fig. MP2

Fig. MP3

5.2. TRUTH TABLE (NV-HS830EG/EC/EE)

5.3. TRUTH TABLE (NV-HS830B)

6. WAVEFORM TABLE & VOLTAGE CHART

6.1. WAVEFORM TABLE

6.2. VOLTAGE CHART

7. BLOCK DIAGRAMS

7.1. SYSTEM CONTROL & SERVO BLOCK DIAGRAM

7.2. LUMINANCE & CHROMINANCE BLOCK DIAGRAM

7.3. AUDIO BLOCK DIAGRAM

8. SCHEMATIC DIAGRAMS

8.1. POWER TRANSFORMER SECTION IN MAIN SCHEMATIC DIAGRAM

8.2. POWER SUPPLY/ RF SECTION IN MAIN SCHEMATIC DIAGRAM

8.3. TIMER SECTION IN MAIN SCHEMATIC DIAGRAM

8.4. SYSTEM CONTROL & SERVO SECTION IN MAIN SCHEMATIC DIAGRAM

8.5. LUMINANCE & CHROMINANCE/ AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM

8.6. Hi-Fi AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM

8.7. Y/C SEPARATION PACK SCHEMATIC DIAGRAM

8.8. INPUT/ OUTPUT PACK SCHEMATIC DIAGRAM

8.9. TV DEMODULATOR PACK SCHEMATIC DIAGRAM

8.10. DECODER PACK SCHEMATIC DIAGRAM (NV-HS830EG)

8.11. NICAM DECODER PACK SCHEMATIC DIAGRAM (NV-HS830B/ EC/EE)

8.12. CYLINDER STATOR UNIT SCHEMATIC DIAGRAM

8.13. CAPSTAN UNIT SCHEMATIC DIAGRAM

8.14. AV FRONT SCHEMATIC DIAGRAM

9. CIRCUIT BOARD ASSEMBLIES

9.1. INPUT/OUTPUT PACK C.B.A.

9.2. MAIN C.B.A.

9.3. CYLINDER STATOR UNIT

9.4. AV FRONT C.B.A.

9.5. Y/C SEPARATION PACK C.B.A.

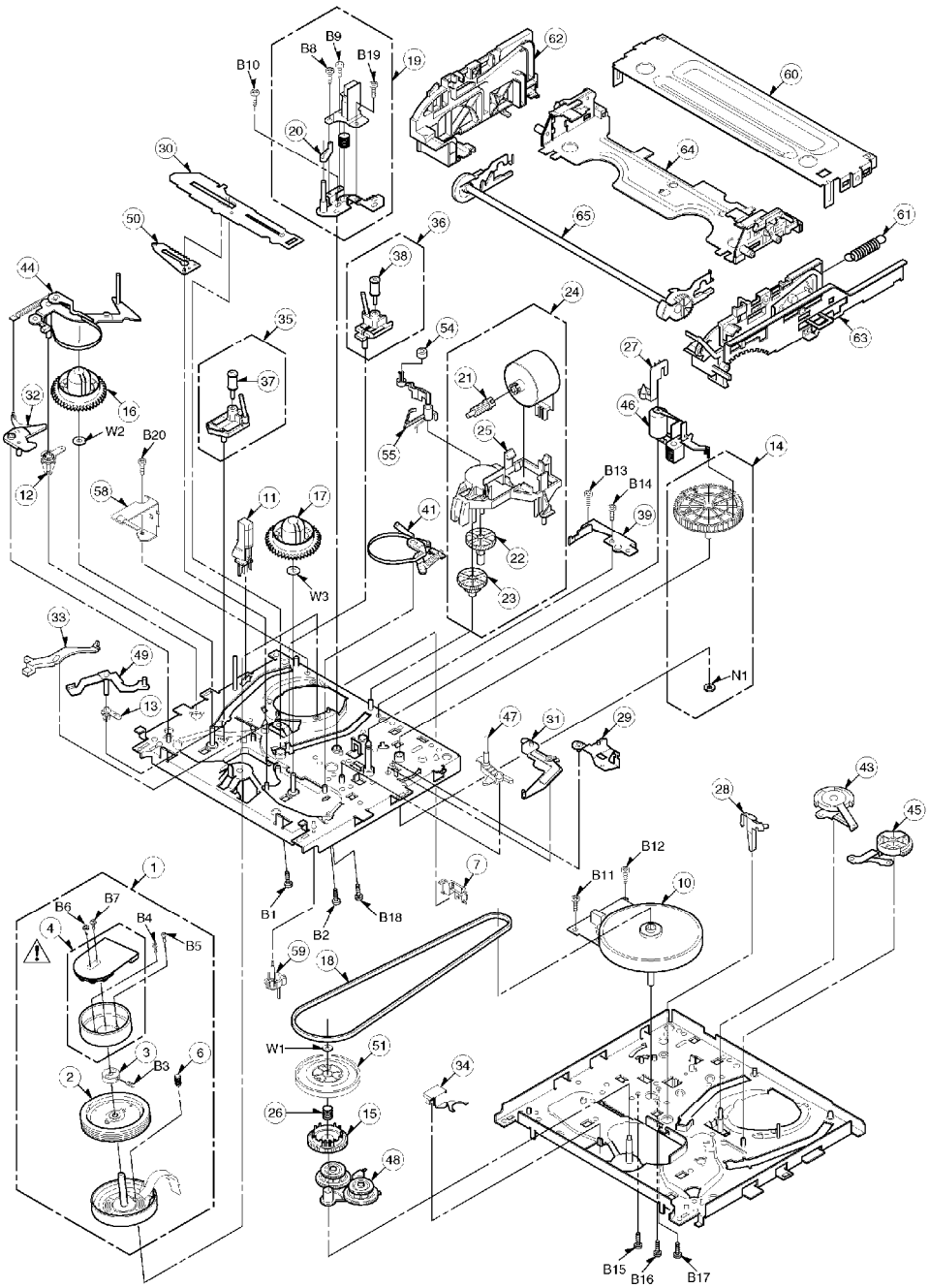
9.6. TV DEMODULATOR PACK C.B.A.

9.7. DECODER PACK C.B.A. (NV-HS830EG)

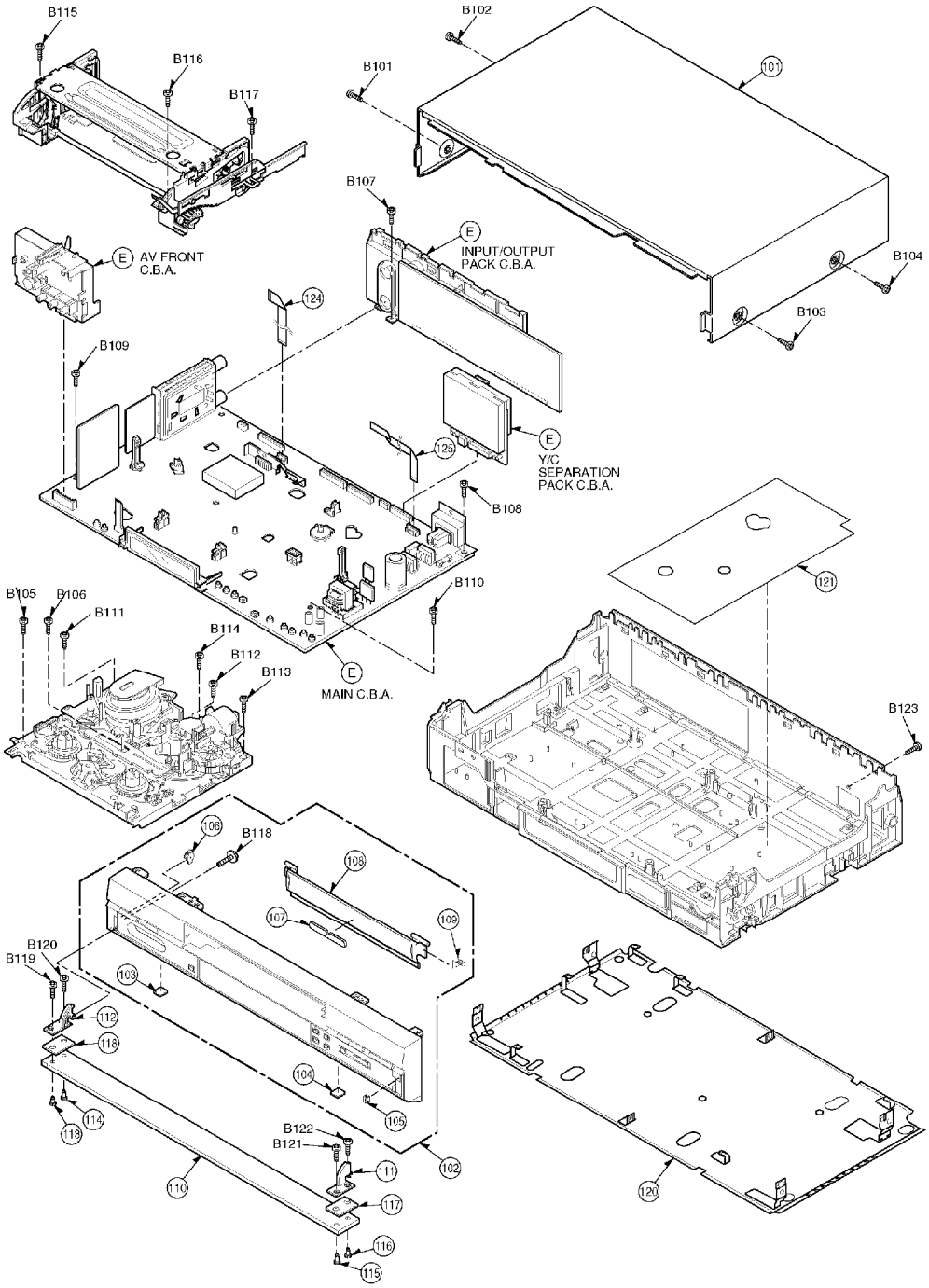
9.8. NICAM DECODER PACK C.B.A. (NV-HS830B/EC/EE)

10. EXPLODED VIEWS

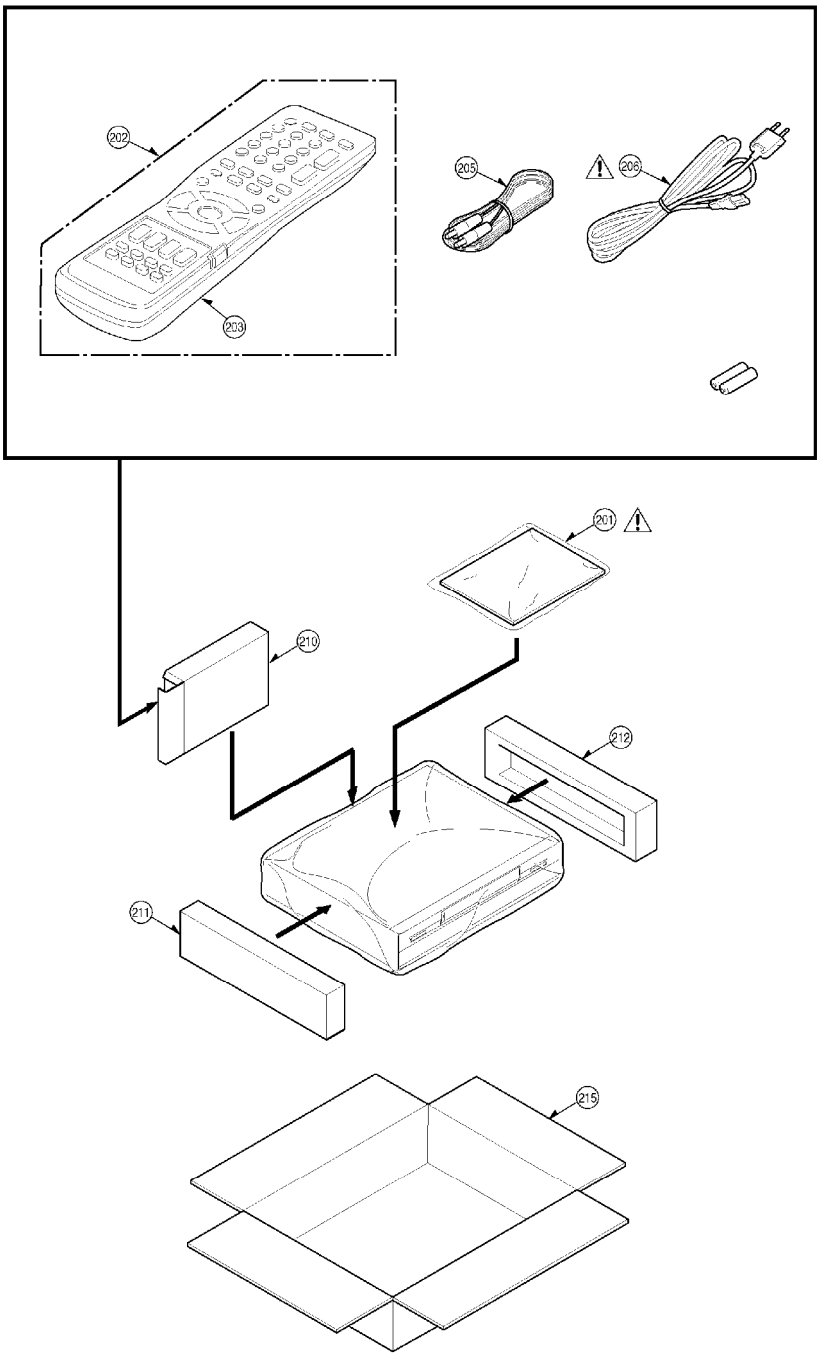
10.1. CHASSIS PARTS SECTION



10.2. CASING PARTS SECTION



10.3. PACKING PARTS SECTION



11. REPLACEMENT PARTS LIST

11.1. CHASSIS PARTS SECTION PARTS LIST

Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark △ have the special characteristics for safety. When replacing any of these components, use only the same type.
3. " [MAVD] " in the Remarks column shows that the parts is/are supplied from MAVD.

Ref. No.	Part No.	Part Name & Description	Remarks
1	VEG1600	CYLINDER UNIT	[MAVD]
2	VXP2173	UPPER CYLINDER UNIT	[MAVD]
3	VDB1256	CYLINDER RETAINER	
4	VEM0715	CYLINDER MOTOR UNIT	⚠
6	VXS0135	EARTH BRUSH UNIT	
7	VMD3795	FLAT CABLE HOLDER	
10	VEK9069	CAPSTAN UNIT	
11	L1AZ00000004	FE HEAD	
12	VDB1431	TENSION ARM BOSS	
13	VDB1460	SUPPLY BRAKE ARM BOSS	
14	VDG1220KIT	MAIN CAM GEAR	
15	VDG1221	CONVERSION GEAR	
16	VDR0350	REEL TABLE	
17	VDR0350	REEL TABLE	
18	VDV0382	CAPSTAN BELT	
19	VED0412	A/C HEAD UNIT	
20	VMX2656	P4 CAP	
21	VDG1217	WORM GEAR	
22	VDG1218	WORM WHEEL GEAR	
23	VDG1219	CENTRE GEAR	
24	VEM0604	LOADING MOTOR UNIT	
25	VMD2619	MOTOR BRACKET	
26	VMB3045	CONVERSION GEAR SPRING	
27	VMD2620	OPENER PIECE	
28	VMD2738	LED PRISM	
29	VML3165	DRIVE RACK ARM	
30	VML3166	MAIN LEVER	
31	VML3167	DRIVE MAIN LEVER ARM	
32	VML3172	SUPPLY SPRING ARM	
33	VML3176	CONVERSION LEVER A	
34	VML3177	CONVERSION LEVER B	
35	VXA6226	INCLINED BASE (S) UNIT	
36	VXA5854	INCLINED BASE (T) UNIT	
37	VXP1895	ROLLER POST (S) UNIT	
38	VXP1891	ROLLER POST (T) UNIT	
39	VMA9672	SUPPORT ANGLE	
41	VXL2667	TAKE UP BRAKE ARM UNIT	
43	VXL2670	TAKE UP LOADING ARM UNIT	
44	VXL2793	TENSION ARM UNIT	
45	VXL2672	SUPPLY LOADING ARM UNIT	
46	VXL2785	PINCH ARM UNIT	
47	VXL2996	P5 ARM UNIT	
48	VXL2792	IDLER ARM UNIT	
49	VXL2733	SUPPLY BRAKE ARM UNIT	
50	VXL2747	LOADING RACK UNIT	
51	VXP2035	CENTRE CLUTCH UNIT	
54	VDP1668-K	CLEANER ROLLER	
55	VML3164	CLEANER ARM	
58	VXS0244	EATH ANGLE	
59	VMD2858	S DETECT ACTUATOR	
60	VMA9516	TOP PLATE	
61	VMB3047	CONNECTION SPRING	
62	VMD3379	SIDE PLATE (L)	
63	VXA6540	SIDE PLATE (R) UNIT	

Ref. No.	Part No.	Part Name & Description	Remarks
64	VXA5746	CASSETTE HOLDER UNIT	
65	VXP1730	MAIN SHAFT UNIT	
B1	VHD1118	SCREW	
B2	VHD1118	SCREW	
B3	VHD0842	SCREW	
B4	VHD0843	SCREW	
B5	VHD0843	SCREW	
B6	VHD0844	SCREW	
B7	VHD0844	SCREW	
B8	VHD1066	SCREW	
B9	VHD1066	SCREW	
B10	VHD1044	SCREW	
B11	VHD1060	SCREW	
B12	VHD1071	SCREW	
B13	XTS26+6F	SCREW	
B14	XTN26+6F	SCREW	
B15	XTN26+7J	SCREW	
B16	XTN26+7J	SCREW	
B17	XTN26+7J	SCREW	
B18	VHD1095	SCREW	
B19	VHD1185	SCREW	
B20	XTV26+6FFZJ	SCREW	
N1	VHN0311	PUSH NUT	
W1	VMX2208	WASHER	
W2	VMX3022	WASHER	
W3	VMX3022	WASHER	

11.2. CASING PARTS SECTION PARTS LIST

Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark △ have the special characteristics for safety. When replacing any of these components, use only the same type.
3. " [MAVD] " in the Remarks column shows that the parts is/are supplied from MAVD.

Ref. No.	Part No.	Part Name & Description	Remarks
101	VGM1834	TOP PANEL	[MAVD] NV-HS830EG-S/B-S/EC-S/EE-S
101	VGM1835	TOP PANEL	[MAVD] NV-HS830EG-K
102	VYP8458	FRONT PANEL (1) UNIT	[MAVD] NV-HS830EG-S/B-S/EC-S/EE-S
102	VYP8459	FRONT PANEL (1) UNIT	[MAVD] NV-HS830EG-K
103	RKA0072-K	FOOT	
104	RKA0072-K	FOOT	
105	VGQ6641	MAGNET HOLDER	[MAVD] NV-HS830EG-S/B-S/EC-S/EE-S
105	VGQ6642	MAGNET HOLDER	[MAVD] NV-HS830EG-K
106	VXP1549	DAMPER GEAR	
107	VGB0554	SUPER DRIVE BADGE	
108	VKF3542	BLINDER PANEL	[MAVD] NV-HS830EG-S/B-S/EC-S/EE-S
108	VKF3543	BLINDER PANEL	[MAVD] NV-HS830EG-K
109	VMB2521	BLINDER SPRING	
110	VYF2825	DOOR (1) UNIT	[MAVD] NV-HS830EG-S
110	VYF2826	DOOR (1) UNIT	[MAVD] NV-HS830EG-K
110	VYF2828	DOOR (1) UNIT	[MAVD] NV-HS830B-S
110	VYF2827	DOOR (1) UNIT	[MAVD] NV-HS830EC-S
110	VYF2829	DOOR (1) UNIT	[MAVD] NV-HS830EE-S
111	VML3674	DOOR ARM (R)	[MAVD] NV-HS830EG-S/B-S/EC-S/EE-S
111	VML3675	DOOR ARM (R)	[MAVD] NV-HS830EG-K
112	VML3671	DOOR ARM (L)	[MAVD] NV-HS830EG-S/B-S/EC-S/EE-S
112	VML3672	DOOR ARM (L)	[MAVD] NV-HS830EG-K
113	VGK2773	DOOR NUT	[MAVD] NV-HS830EG-S/B-S/EC-S/EE-S
113	VGK2762	DOOR NUT	[MAVD] NV-HS830EG-K
114	VGK2773	DOOR NUT	NV-HS830EG-S/B-S/EC-S/EE-S
114	VGK2762	DOOR NUT	NV-HS830EG-K
115	VGK2773	DOOR NUT	NV-HS830EG-S/B-S/EC-S/EE-S
115	VGK2762	DOOR NUT	NV-HS830EG-K
116	VGK2773	DOOR NUT	NV-HS830EG-S/B-S/EC-S/EE-S
116	VGK2762	DOOR NUT	NV-HS830EG-K
117	VMX3224	DOOR SPACER	[MAVD]
118	VMX3224	DOOR SPACER	[MAVD]
120	VKU0575	BOTTOM PLATE	[MAVD]
121	VMZ3099	VO SHEET	[MAVD]
124	VWJ1477	FLAT CARD CABLE (6P)	[MAVD] P4003-A/C HEAD
125	VWJ1476	FLAT CARD CABLE (9P)	[MAVD] P2502-P2901
B101	XTW3+10TFC	SCREW	NV-HS830EG-S/B-S/EC-S/EE-S
B101	XTW3+10TFZ	SCREW	NV-HS830EG-K
B102	XTW3+10TFC	SCREW	NV-HS830EG-S/B-S/EC-S/EE-S
B102	XTW3+10TFZ	SCREW	NV-HS830EG-K
B103	XTW3+10TFC	SCREW	NV-HS830EG-S/B-S/EC-S/EE-S
B103	XTW3+10TFZ	SCREW	NV-HS830EG-K
B104	XTW3+10TFC	SCREW	NV-HS830EG-S/B-S/EC-S/EE-S
B104	XTW3+10TFZ	SCREW	NV-HS830EG-K
B105	VHD0168	SCREW	
B106	VHD0168	SCREW	
B107	VHD1092	SCREW	
B108	VHD1092	SCREW	
B109	VHD1092	SCREW	
B110	VHD1092	SCREW	
B111	VHD1092	SCREW	
B112	VHD1092	SCREW	
B113	VHD1092	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks
B114	XTV26+6JFR	SCREW	
B115	XTV26+8FR	SCREW	
B116	XTV26+8FR	SCREW	
B117	XTV26+8FR	SCREW	
B118	RHD26034	SCREW	
B119	RHD26033	SCREW	
B120	RHD26033	SCREW	
B121	RHD26033	SCREW	
B122	RHD26033	SCREW	
B123	XTV3+6JFZ	SCREW	

11.3. PACKING PARTS SECTION PARTS LIST

Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.
3. " [MAVD] " in the Remarks column shows that the parts is/are supplied from MAVD.

Ref. No.	Part No.	Part Name & Description	Remarks
201	VQT9606	OPERATING INSTRUCTIONS (ENGLISH/ GERMAN)	⚠ [MAVD] NV-HS830EG-S/EG-K/EC-S
201	VQT9607	OPERATING INSTRUCTIONS (FRENCH/ DUTCH)	⚠ [MAVD] NV-HS830EG-S/EG-K/EC-S
201	VQT9608	OPERATING INSTRUCTIONS (ITALIAN/ GREEK)	⚠ [MAVD] NV-HS830EG-S/EG-K
201	VQT9612	OPERATING INSTRUCTIONS (ENGLISH)	⚠ [MAVD] NV-HS830B-S
201	VQT9614	OPERATING INSTRUCTIONS (ENGLISH/ POLISH)	⚠ [MAVD] NV-HS830EE-S
201	VQT9615	OPERATING INSTRUCTIONS (CZECO/ HUNGALIAN/RUSSIAN)	⚠ [MAVD] NV-HS830EE-S
201	VQT9609	OPERATING INSTRUCTIONS (SPANISH/ SWEDISH)	⚠ [MAVD] NV-HS830EC-S
201	VQT9610	OPERATING INSTRUCTIONS (DANISH/ FINNISH)	⚠ [MAVD] NV-HS830EC-S
201	VQT9611	OPERATING INSTRUCTIONS (PORTUGUESE)	⚠ [MAVD] NV-HS830EC-S
202	N2QAKB000027	REMOTE CONTROLLER	[MAVD] NV-HS830EG-S/EG-K/EC-S/EE-S
202	N2QAKB000028	REMOTE CONTROLLER	[MAVD] NV-HS830B-S
203	R0186-720010	BATTERY COVER	[MAVD]
205	VJA0728-A	DIN RF CABLE	[MAVD]
206	RJA0043	AC CORD	⚠ [MAVD] NV-HS830EG-S/EG-K/EC-S/ EE-S
206	RJA0044	AC CORD	⚠ [MAVD] NV-HS830B-S
210	VPK2246	ACCESSORIES PACKING	[MAVD]
211	VPN5555	CUSHION (L)	[MAVD]
212	VPN5554	CUSHION (R)	[MAVD]
215	VPG0M89	PACKING	[MAVD] NV-HS830EG-S/B-S/EC-S/EE-S
215	VPG0M90	PACKING	[MAVD] NV-HS830EG-K
		SERVICE FIXTURES & TOOLS	
	VFJ8125H3F	VHS ALIGNMENT TAPE (PAL)	
	VFK0335	RETAINING RING REMOVER (3mm/ 4mm)	

Ref. No.	Part No.	Part Name & Description	Remarks
	VFK0329	POST ADJUSTMENT SCREWDRIVER	
	VFK0326	HEX WRENCH SET	
	VFK0132	BACK TENSION METER	
	VFK27	HEAD CLEANING STICK	
	VFK1024	MOLYTONE GREASE	
	VFK0330	FINE ADJUSTMENT GEAR DRIVER	
	VFK1301	SILICONE GREASE	
	VFK1298	FLOIL GREASE	

11.4. ELECTRICAL PARTS LIST

Note: 1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE: Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.
3. Unless otherwise specified.
All resistors are in OHMS. K=1,000 OHMS. All capacitors are in MICROFARADS (uf). P=uuF.
4. The P.C. Board units marked width "■" show below the main assembled parts.
5. The marking (RTL) indicaters the retention time is limited for this item.
After the discontinuation of this assembly in production, it will no longer be available.
6. " [MAVD] " in the Remarks column shows that the parts is/are supplied from MAVD.
7. " *1 ", " *2 ", " *3 ", " *4 " in the Remarks column shows the models as follows.
" *1 ": NV-HS930EG-S/EG-K
" *2 ": NV-HS930B-S
" *3 ": NV-HS930EC-S
" *4 ": NV-HS930EE-S

Ref. No.	Part No.	Part Name & Description	Remarks
■	VEP06E67A	MAIN C.B.A.	(RTL)[MAVD] *1
			THE FOLLOWING C.B.A.S ARE INCLUDED IN MAIN C.B.A.
			VEP07A16A, VEP07A23S
■	VEP06E67B	MAIN C.B.A.	(RTL)[MAVD] *2
			THE FOLLOWING C.B.A.S ARE INCLUDED IN MAIN C.B.A.
			VEP07A18X, VEP07A23T
■	VEP06E67C	MAIN C.B.A.	(RTL)[MAVD] *3
			THE FOLLOWING C.B.A.S ARE INCLUDED IN MAIN C.B.A.
			VEP07A18R, VEP07A23S
■	VEP06E67E	MAIN C.B.A.	(RTL)[MAVD] *4
			THE FOLLOWING C.B.A.S ARE INCLUDED IN MAIN C.B.A.
			VEP07A18T, VEP07A23U
■	VEP07A16A	DECODER PACK C.B.A.	(RTL)[MAVD] *1
			INCLUDED IN MAIN C.B.A.(VEP06E67A).
■	VEP07A18X	NICAM DECODER PACK C.B.A.	(RTL)[MAVD] *2
			INCLUDED IN MAIN C.B.A.(VEP06E67B).
■	VEP07A18R	NICAM DECODER PACK C.B.A.	(RTL)[MAVD] *3
			INCLUDED IN MAIN C.B.A.(VEP06E67C).
■	VEP07A18T	NICAM DECODER PACK C.B.A.	(RTL)[MAVD] *4
			INCLUDED IN MAIN C.B.A.(VEP06E67E).

Ref. No.	Part No.	Part Name & Description	Remarks
■	VEP07A23S	TV DEMODULATOR PACK C.B.A	(RTL)[MAVD] *1, *3
			INCLUDED IN MAIN C.B.A.(VEP06E67A/C).
■	VEP07A23T	TV DEMODULATOR PACK C.B.A	(RTL)[MAVD] *2
			INCLUDED IN MAIN C.B.A.(VEP06E67B).
■	VEP07A23U	TV DEMODULATOR PACK C.B.A	(RTL)[MAVD] *4
			INCLUDED IN MAIN C.B.A.(VEP06E67E).
■	VEP03G10A	I/O C.B.A.	(RTL)[MAVD]
■	VEP03G12A	Y/C SEPA C.B.A.	(RTL)[MAVD]
■	VEP04800B	AV FRONT C.B.A.	(RTL)[MAVD]
■	----------	CYLINDER STATOR C.B.A.	INCLUDED IN CYLINDER MOTOR UNIT (VEM0715).
■	----------	CAPSTAN DRIVE C.B.A.	INCLUDED IN CAPSTAN UNIT (VEK9069).
■	VEP06E67A	MAIN C.B.A.	(RTL)[MAVD] *1
■	VEP06E67B	MAIN C.B.A.	(RTL)[MAVD] *2
■	VEP06E67C	MAIN C.B.A.	(RTL)[MAVD] *3
■	VEP06E67E	MAIN C.B.A.	(RTL)[MAVD] *4
C0701	ECJ2VF1C105Z	C.CAPACITOR CH 16V 1U	
C0702	ECJ1VB1H102K	C.CAPACITOR CH 50V 1000P	
C0703	ECJ2YB1A105K	C.CAPACITOR CH 10V 1U	
C0704	ECUV1E333KBN	C.CAPACITOR CH 25V 0.033U	
C0707	ECEA1HKS2R2	E.CAPACITOR 50V 2.2U	
C0708	ECEA1HKAR47B	E.CAPACITOR 50V 0.47U	
C0710	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C0711	ECEA1CKS220	E.CAPACITOR 16V 22U	
C0712	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C0713	ECEA0JKS331	E.CAPACITOR 6.3V 330U	
C0714	ECJ2VF1C105Z	C.CAPACITOR CH 16V 1U	
C0715	ECJ1VC1H030C	C.CAPACITOR CH 50V 3P	*1, *3, *4
C0715	ECJ1VC1H120J	C.CAPACITOR CH 50V 12P	*2
C0717	ECUM1H330GUV	C.CAPACITOR CH 50V 33P	
C0719	ECUX1E104ZFV	C.CAPACITOR CH 25V 0.1U	F1H1E104A026
C0721	ECJ1VC1H121J	C.CAPACITOR CH 50V 120P	[MAVD] *1, *3
C0721	ECUX1H820JCV	C.CAPACITOR CH 50V 82P	*2
C0721	ECJ1VC1H560J	C.CAPACITOR CH 50V 56P	*4
C0724	ECJ1VB1H221K	C.CAPACITOR CH 50V 220P	*1, *3, *4
C0724	ECUX1H331KBV	C.CAPACITOR CH 50V 330P	*2
C1002	EEUEB1H220SB	E.CAPACITOR 50V 22U	[MAVD]
C1003	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
C1004	F2A1C470A015	E.CAPACITOR 16V 47U	
C1006	ECEA1HKA4R7B	E.CAPACITOR 50V 4.7U	
C1007	ECJ1VB1H102K	C.CAPACITOR CH 50V 1000P	
C1008	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C1009	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C1011	EEUEB1E470SB	E.CAPACITOR 25V 47U	[MAVD]
C1016	ECA1EHJ470	E.CAPACITOR 25V 47U	[MAVD]
C1018	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C1019	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C1020	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C1021	ECEA1CKS220	E.CAPACITOR 16V 22U	
C1024	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C1025	ECJ2YB1H104K	C.CAPACITOR CH 50V 0.1U	[MAVD]
C1026	ECJ2YB1H104K	C.CAPACITOR CH 50V 0.1U	[MAVD]
C1101	VCF2AAF683M	X2 CAPACITORS	⚠ [MAVD]
C1102	F1BAF1020020	CERAMIC CAPACITOR	⚠ [MAVD]
C1106	EEUEB2G330E	E.CAPACITOR 400V 33U	[MAVD]
C1107	F1A3A271A028	E.CAPACITOR 1KV 270U	F1A3A271A034
C1108	ECQB1H223JF3	P.CAPACITOR 50V 0.022U	
C1109	ECQB1H473JF3	P.CAPACITOR 50V 0.047U	
C1110	ECQV1H104JL3	P.CAPACITOR 50V 0.1U	
C1111	ECQB1H103JZ	P.CAPACITOR 50V 0.01U	
C1112	F1BAF1020020	CERAMIC CAPACITOR	⚠ [MAVD]
C1201	F1B3A332A004	E.CAPACITOR 1KV 3300U	[MAVD]
C1202	F2A1H560A101	E.CAPACITOR 50V 56U	[MAVD]
C1203	EEUFG1E821	E.CAPACITOR 25V 820U	[MAVD]
C1204	EEUFG1A222	E.CAPACITOR 10V 2200U	[MAVD]
C1205	F2A1H560A101	E.CAPACITOR 50V 56U	[MAVD]
C1206	F2A1A101A089	E.CAPACITOR 10V 100U	[MAVD]
C1207	ECQV1H104JL3	P.CAPACITOR 50V 0.1U	
C1208	ECA1AHJ331	E.CAPACITOR 10V 330U	[MAVD]
C1209	ECA1EM101	E.CAPACITOR 25V 100U	
C1501	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C2502	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C2503	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C2505	ECJ1VB1C563K	C.CAPACITOR CH 16V 0.056U	
C2506	ECJ1VB1C563K	C.CAPACITOR CH 16V 0.056U	
C2507	ECJ1VB1C563K	C.CAPACITOR CH 16V 0.056U	
C2508	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C2509	ECJ1VF1C474Z	C.CAPACITOR CH 16V 0.47U	
C2510	ECJ1VC1H330J	C.CAPACITOR CH 50V 33P	[MAVD]
C2511	ECEA0JKN220B	E.CAPACITOR 6.3V 22U	
C2512	ECEA1EKS4R7	E.CAPACITOR 25V 4.7U	
C2513	ECJ1VB1H392K	C.CAPACITOR CH 50V 3900P	
C2514	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C2515	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C2516	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C2518	ECJ2VF1E104Z	C.CAPACITOR CH 25V 0.1U	
C2519	ECJ1VB1E223K	C.CAPACITOR CH 25V 0.022U	
C2520	ECJ1VB1E223K	C.CAPACITOR CH 25V 0.022U	
C2521	ECJ2VB1C224K	C.CAPACITOR CH 16V 0.22U	
C2522	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C2523	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	

Ref. No.	Part No.	Part Name & Description	Remarks
C2524	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C2525	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C2526	ECA0JHJ221	E.CAPACITOR 6.3V 220U	[MAVD]
C3001	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3002	ECJ1VC1H151J	C.CAPACITOR CH 50V 150P	
C3003	ECJ1VB0J105K	C.CAPACITOR CH 6.3V 1U	
C3005	ECJ1VC1H270J	C.CAPACITOR CH 50V 27P	
C3006	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3008	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3009	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3010	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3011	ECEA0JKS470	E.CAPACITOR 6.3V 47U	
C3012	ECJ2VB1C224K	C.CAPACITOR CH 16V 0.22U	
C3013	F1J1C105A091	CERAMIC CAPACITOR	
C3014	F1J1A335A005	CERAMIC CAPACITOR	
C3015	ECEA1HKS010	E.CAPACITOR 50V 1U	
C3016	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C3017	F1J1C105A091	CERAMIC CAPACITOR	
C3018	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3019	ECJ1VB0J105K	C.CAPACITOR CH 6.3V 1U	
C3020	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C3021	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
C3025	F1J1A335A005	CERAMIC CAPACITOR	
C3026	ECJ1VC1H050C	C.CAPACITOR CH 50V 5P	
C3027	ECJ1VB1E223K	C.CAPACITOR CH 25V 0.022U	
C3028	ECJ2YB1C474K	C.CAPACITOR CH 16V 0.47U	
C3029	ECEA0JKS470	E.CAPACITOR 6.3V 47U	
C3030	ECJ2VB1C224K	C.CAPACITOR CH 16V 0.22U	
C3031	ECJ2YB1A225K	C.CAPACITOR CH 10V 2.2U	[MAVD]
C3032	ECJ1VB1E223K	C.CAPACITOR CH 25V 0.022U	
C3033	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3034	ECUX1C333KBV	C.CAPACITOR CH 16V 0.033U	
C3035	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C3036	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3037	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C3038	F1J1C105A091	CERAMIC CAPACITOR	
C3039	ECEA0JKS101	E.CAPACITOR 6.3V 100U	
C3041	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
C3044	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3047	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3048	ECEA1CKS100	E.CAPACITOR 16V 10U	
C3049	ECJ2YB1A105K	C.CAPACITOR CH 10V 1U	
C3050	ECEA0JKS470	E.CAPACITOR 6.3V 47U	
C3051	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3053	F1J1C105A091	CERAMIC CAPACITOR	
C3057	ECJ1VC1H470J	C.CAPACITOR CH 50V 47P	
C3058	ECJ1VC1H151J	C.CAPACITOR CH 50V 150P	
C3059	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3060	ECJ1VF1A105Z	C.CAPACITOR CH 10V 1U	
C3062	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3068	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3069	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3501	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C3502	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]

Ref. No.	Part No.	Part Name & Description	Remarks
C3503	ECUX1H221GCV	C.CAPACITOR CH 50V 220P	[MAVD]
C3504	ECUV1H271GCN	C.CAPACITOR CH 50V 270P	ECJ2VC1H271G
C3505	ECUV1H271GCN	C.CAPACITOR CH 50V 270P	ECJ2VC1H271G
C3506	ECUV1H820GCN	C.CAPACITOR CH 50V 82P	ECJ2VC1H820G
C3507	ECEA0JKS470	E.CAPACITOR 6.3V 47U	
C3508	ECUV1H271GCN	C.CAPACITOR CH 50V 270P	ECJ2VC1H271G
C3509	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C3510	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C3511	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C3512	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C3513	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C3515	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C3516	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3517	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3518	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C3521	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C4001	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4002	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C4003	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C4004	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4005	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C4006	ECEA0JKS470	E.CAPACITOR 6.3V 47U	
C4007	ECJ2YB0J475K	C.CAPACITOR CH 6.3V 4.7U	[MAVD]
C4008	ECJ1VB1H822K	C.CAPACITOR CH 50V 8200P	
C4009	ECEA0JKS220	E.CAPACITOR 6.3V 22U	
C4010	ECEA1EKS3R3	E.CAPACITOR 25V 3.3U	
C4012	ECJ1VB1H122K	C.CAPACITOR CH 50V 1200P	
C4013	ECEA1EKS4R7	E.CAPACITOR 25V 4.7U	
C4014	ECJ1VB1H472K	C.CAPACITOR CH 50V 4700P	
C4015	ECEA0JKS220	E.CAPACITOR 6.3V 22U	
C4016	ECEA0JKS101	E.CAPACITOR 6.3V 100U	
C4017	ECJ1VC1H101J	C.CAPACITOR CH 50V 100P	
C4018	ECUX1H221JCV	C.CAPACITOR CH 50V 220P	ECJ1XC1H221J
C4019	ECQB1H223JF3	P.CAPACITOR 50V 0.022U	
C4020	ECEA1AKS470	E.CAPACITOR 10V 47U	
C4021	ECJ1VB1H152K	C.CAPACITOR CH 50V 1500P	
C4022	ECJ1VB1E223K	C.CAPACITOR CH 25V 0.022U	
C4023	ECEA1AKS220	E.CAPACITOR 10V 22U	
C4024	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4501	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4502	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4503	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4504	ECQB1H473JF3	P.CAPACITOR 50V 0.047U	
C4505	ECEA1AKS330	E.CAPACITOR 10V 33U	
C4506	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4507	ECEA1CKS220	E.CAPACITOR 16V 22U	
C4508	ECQB1H153JF3	P.CAPACITOR 50V 0.015U	
C4509	ECUX1C333KBV	C.CAPACITOR CH 16V 0.033U	
C4511	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C4514	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C4515	ECEA0JKS101	E.CAPACITOR 6.3V 100U	
C4516	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C4517	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C4519	ECJ2VB1C224K	C.CAPACITOR CH 16V 0.22U	

Ref. No.	Part No.	Part Name & Description	Remarks
C4520	ECQB1H153JF3	P.CAPACITOR 50V 0.015U	
C4521	ECEA0JKS220	E.CAPACITOR 6.3V 22U	
C4522	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4523	ECEA1AKS330B	E.CAPACITOR 10V 33U	
C4524	ECQB1H473JF3	P.CAPACITOR 50V 0.047U	
C4525	ECEA0JKS101	E.CAPACITOR 6.3V 100U	
C4526	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C4529	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4530	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4531	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4532	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4533	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4534	ECEA1CKA470	E.CAPACITOR 16V 47U	
C4535	ECEA1CKS100	E.CAPACITOR 16V 10U	
C4536	ECEA1CKS220	E.CAPACITOR 16V 22U	
C4538	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C4539	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C4540	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C4541	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C4544	ECJ1VC1H101J	C.CAPACITOR CH 50V 100P	
C4545	ECJ1VC1H101J	C.CAPACITOR CH 50V 100P	
C5002	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C5003	ECEA0JKS101	E.CAPACITOR 6.3V 100U	
C5004	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C5005	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C5006	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C5007	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C5008	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C5009	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C5010	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C6001	ECEA0JKS470	E.CAPACITOR 6.3V 47U	
C6003	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	ECJ1XC1H471J
C6004	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C6005	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C6009	ECUX1H180JCV	C.CAPACITOR CH 50V 18P	
C6010	ECUX1H180JCV	C.CAPACITOR CH 50V 18P	
C6011	ECUX1H180JCV	C.CAPACITOR CH 50V 18P	
C6012	ECJ1VC1H150J	C.CAPACITOR CH 50V 15P	
C6013	ECJ2YB1A105K	C.CAPACITOR CH 10V 1U	
C6014	ECJ1VB1H102K	C.CAPACITOR CH 50V 1000P	
C6015	ECEA1CKS100	E.CAPACITOR 16V 10U	
C6016	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C6017	ECUX1H681JCV	C.CAPACITOR CH 50V 680P	
C6022	ECUV1H221JCN	C.CAPACITOR CH 50V 220P	ECJ2VC1H221J
C6023	ECJ2VF1C105Z	C.CAPACITOR CH 16V 1U	
C6024	ECEA1AKS221	E.CAPACITOR 10V 220U	
C6025	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C6027	ECUX1C333KBV	C.CAPACITOR CH 16V 0.033U	
C6028	ECJ1VB1H222K	C.CAPACITOR CH 50V 2200P	
C6029	ECJ1VF1C474Z	C.CAPACITOR CH 16V 0.47U	
C6030	ECJ1VC1H151J	C.CAPACITOR CH 50V 150P	
C6031	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C6032	ECEA0JKS470	E.CAPACITOR 6.3V 47U	
C6033	ECUX1H221JCV	C.CAPACITOR CH 50V 220P	ECJ1XC1H221J

Ref. No.	Part No.	Part Name & Description	Remarks
C6034	ECUX1H221JCV	C.CAPACITOR CH 50V 220P	ECJ1XC1H221J
C6035	ECJ2YB1A105K	C.CAPACITOR CH 10V 1U	
C6036	ECUX1H561JCV	C.CAPACITOR CH 50V 560P	ECJ1XC1H561J
C6037	ECUV1H221JCN	C.CAPACITOR CH 50V 220P	ECJ2VC1H221J
C6040	ECJ1VC1H101J	C.CAPACITOR CH 50V 100P	
C6041	ECJ1VC1H101J	C.CAPACITOR CH 50V 100P	
C7301	ECUV1H103KBN	C.CAPACITOR CH 50V 0.01U	*1 ECJ2VB1H103K
C7301	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	*2, *3, *4
C7302	ECEA1HKNR47B	E.CAPACITOR 50V 0.47U	*1
C7303	ECEA1HKNR47B	E.CAPACITOR 50V 0.47U	*1
C7304	ECUV1H681JCN	C.CAPACITOR CH 50V 680P	*1
C7304	F2A0J1010027	E.CAPACITOR 6.3V 100U	*2, *3, *4
C7305	ECUX1H123KBN	C.CAPACITOR CH 50V 0.012U	*1
C7305	ECJ1VC1H330J	C.CAPACITOR CH 50V 33P	[MAVD] *2, *3, *4
C7306	ECUX1H123KBN	C.CAPACITOR CH 50V 0.012U	*1
C7306	ECJ1VC1H330J	C.CAPACITOR CH 50V 33P	[MAVD] *2, *3, *4
C7307	ECUV1H681JCN	C.CAPACITOR CH 50V 680P	*1
C7307	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	*2, *3, *4
C7308	ECEA1HKNR47B	E.CAPACITOR 50V 0.47U	*1
C7308	ECEA1HKS2R2	E.CAPACITOR 50V 2.2U	*2, *3, *4
C7309	ECUV1H103KBN	C.CAPACITOR CH 50V 0.01U	*1 ECJ2VB1H103K
C7310	ECUV1H103KBN	C.CAPACITOR CH 50V 0.01U	*1 ECJ2VB1H103K
C7311	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	*2, *3, *4
C7312	ECEA1CKS100	E.CAPACITOR 16V 10U	*1
C7312	ECJ1VC1H220J	C.CAPACITOR CH 50V 22P	*2, *3, *4
C7313	ECEA1CKS100	E.CAPACITOR 16V 10U	*1
C7313	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	*2, *3, *4
C7315	ECJ2VB1E104K	C.CAPACITOR CH 25V 0.1U	*2, *3, *4
C7316	ECJ2VF1H104Z	C.CAPACITOR CH 50V 0.1U	*1
C7316	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	*2, *3, *4
C7317	ECEA0JKS101	E.CAPACITOR 6.3V 100U	*1
C7317	F2A1C100A009	E.CAPACITOR 16V 10U	*2, *3, *4
C7318	ECEA1CKS100	E.CAPACITOR 16V 10U	*1
C7318	F2A0J470A011	E.CAPACITOR 6.3V 47U	*2, *3, *4
C7319	ECEA1CKA470	E.CAPACITOR 16V 47U	*1
C7319	F2A1C100A009	E.CAPACITOR 16V 10U	*2, *3, *4
C7320	ECJ2VB1H472K	C.CAPACITOR CH 50V 4700P	[MAVD] *1
C7320	F2A1C100A009	E.CAPACITOR 16V 10U	*2, *3, *4
C7321	ECEA1HKAR47B	E.CAPACITOR 50V 0.47U	*1
C7322	ECEA1HKNR47B	E.CAPACITOR 50V 0.47U	*1
C7323	ECJ2YB1H104K	C.CAPACITOR CH 50V 0.1U	[MAVD] *1
C7324	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	*2, *3, *4
C7325	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	*2, *3, *4
C7326	ECUM1H152KBM	C.CAPACITOR CH 50V 1500P	*1
C7327	ECUM1H152KBM	C.CAPACITOR CH 50V 1500P	*1
C7328	ECUM1H152KBM	C.CAPACITOR CH 50V 1500P	*1
C7341	ECJ1VB1H472K	C.CAPACITOR CH 50V 4700P	*2, *3, *4
C7342	ECJ1VB1H472K	C.CAPACITOR CH 50V 4700P	*2, *3, *4
C7343	ECJ1VB1H222K	C.CAPACITOR CH 50V 2200P	*2, *3, *4
C7501	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C7502	ECEA1HKS100	E.CAPACITOR 50V 10U	
C7503	ECJ1VC1H120J	C.CAPACITOR CH 50V 12P	
C7504	ECEA0JKS101	E.CAPACITOR 6.3V 100U	
C7507	VCE0073	SUPER CAPACITOR	

Ref. No.	Part No.	Part Name & Description	Remarks
C7508	ECEA1AKS221	E.CAPACITOR 10V 220U	
C7509	ECJ1VB1H682K	C.CAPACITOR CH 50V 6800P	
C7510	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C7511	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C7601	ECEA0JKS101	E.CAPACITOR 6.3V 100U	
C7602	ECEA0JKS101	E.CAPACITOR 6.3V 100U	
C7605	ECEA1HKS010	E.CAPACITOR 50V 1U	
C7610	ECJ1VC1H330J	C.CAPACITOR CH 50V 33P	[MAVD]
C7611	ECJ1VC1H330J	C.CAPACITOR CH 50V 33P	[MAVD]
C7612	ECEA0JKS101	E.CAPACITOR 6.3V 100U	
C7613	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C7615	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	*4
C7619	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C7620	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C7652	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	*2, *3, *4
D0702	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
D1002	MA4056N-H	DIODE	MAZ4056NH
D1003	MA4051N-L	DIODE	
D1005	MA4056N-H	DIODE	MAZ4056NH
D1007	MA4130N-L	DIODE	MAZ4130NL
D1101	ERZVA5Z471	TRANSIENT/SURGE ABSORBER	⚠
D1103	DF08S-6622	DIODE	B0KB00000013
D1104	MAZ40270LF	DIODE	[MAVD]
D1105	MA2C165001VT	DIODE	
D1106	MA2C18500E	DIODE	[MAVD]
D1107	MAZ751000C	DIODE	
D1108	AU01Z	DIODE	B0HAGM000006
D1201	MA2C18500E	DIODE	[MAVD]
D1204	21DQ10FC4	DIODE	B0JAML000007
D1208	MA2C18500E	DIODE	[MAVD]
D1209	11EQS04	DIODE	B0JAME000020
D1213	31DQ04	DIODE	B0JAQE000004
D1501	SIR505S	DIODE	B3EA00000040
D2501	MA2C165001VT	DIODE	
D2502	MA2C165001VT	DIODE	
D4502	MA2C165001VT	DIODE	
D6003	B0ACCK000005	DIODE	
D6004	B0ACCK000005	DIODE	
D7501	MAZ4220NMF	DIODE	[MAVD]
D7503	B0JACE000001	DIODE	
D7601	MA4300M	DIODE	MAZ43000M
D7602	MA2C165001VT	DIODE	*1
D7603	MA2C165001VT	DIODE	*1
DP7501	A2BD00000040	DISPLAY TUBE	
F1101	K5D162BK0005	FUSE	⚠
FL7301	VLF0633	FILTER	*2, *3, *4 J0HACK000008
IC0701	LA75503	IC	C1AA00000606
IC1001	UPC1093J	IC	C0DAEMC00002

Ref. No.	Part No.	Part Name & Description	Remarks
IC1201	UPC1093J	IC	C0DAEMC00002
IC1501	RPI354N	IC	B3EZ00000001
IC1502	RPI354N	IC	B3EZ00000001
IC2501	C1AB00001331	IC	[MAVD] C1AB00001332
IC3001	C1AB00001299	IC	[MAVD]
IC3501	AN3293S	IC	
IC3502	M52065FP	IC	C1AB00000739
IC4501	AN3656NFBPBV	IC	
IC6001	C2CBJG000216	IC	[MAVD]
IC6002	M24C16-WBN6	IC	C3EAGC000015
IC6003	C1AB00001293	IC	[MAVD]
IC7301	C0ZBZ0000580	IC	[MAVD] *1
IC7301	TDA9874AH	IC	*2, *3, *4 C1AB00001404
IC7302	PST7043	IC	*2, *3, *4 C0EAH0000051
IC7501	M35502AFP	IC	
IC7503	C0EBE0000211	IC	[MAVD]
IC7504	C0EBH0000218	IC	[MAVD]
K0701	ECJ1VC1H560J	C.CAPACITOR CH 50V 56P	*1, *3
K0703	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
K0707	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
K0709	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
K1213	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3001	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3003	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3004	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3005	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3006	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3012	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	
K3016	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3027	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3029	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3030	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3035	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K5001	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K6002	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K6004	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K6005	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K7301	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K7302	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	*2, *3, *4 D0GBR00JA017
K7303	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	*2, *3, *4 D0GBR00JA017
K7503	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K7601	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K7609	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K7611	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K7612	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K7613	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K7614	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K7616	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	*4 D0GBR00JA017
L0701	ELJNAR27JF	INDUCTOR 0.27UH	*1, *3, *4
L0701	ELJNAR22JF	CHIP INDUCTOR	*2
L0703	ELJNA2R2JF	INDUCTOR 2.2UH	*1, *3, *4
L0703	ELJNA1R8JF	CHIP INDUCTOR	*2

Ref. No.	Part No.	Part Name & Description	Remarks
L1101	ELF15N005A	LINE FILTER	⚠
L1102	ELF15N003A	LINE FILTER	⚠
L1201	VLQ0775K220	CHOKE COIL	[MAVD]
L1202	VLQ0775K220	CHOKE COIL	[MAVD]
L2501	VLQ0599J680	COIL 68UH	G0C680JA0026
L3002	VLQ0599J820	COIL 82UH	G0C820JA0026
L3003	VLQ0599J150	COIL 15UH	G0C150JA0026
L3006	VLQ0163J120	COIL 12UH	G1C120J00001
L3007	VLQ0599J390	COIL 39UH	G0C390JA0026
L3008	VLQ0599J560	COIL 56UH	G0C560JA0026
L3010	VLQ0599J560	COIL 56UH	G0C560JA0026
L3013	VLQ0599J181	COIL 180UH	G0C181JA0019
L3015	VLQ0599J560	COIL 56UH	G0C560JA0026
L4002	VLQ0599J680	COIL 68UH	G0C680JA0026
L4501	VLQ0599J1R2	COIL 1.2UH	G0C1R2JA0026
L4502	VLQ0599J1R2	COIL 1.2UH	G0C1R2JA0026
L5001	VLQ0599J560	COIL 56UH	G0C560JA0026
L6001	G0C101JA0019	INDUCTOR	
L6005	VLQ0599J680	COIL 68UH	G0C680JA0026
L6006	VLQ0599J680	COIL 68UH	G0C680JA0026
L7302	G0C1R0JA0019	INDUCTOR	*2, *3, *4
L7602	G0C330JA0019	INDUCTOR	
L7603	VLQ0599J180	COIL 18UH	G0C180JA0026
L7604	VLQ0599J2R2	COIL 2.2UH	G0C2R2JA0026
L7607	VLQ0599J2R2	COIL 2.2UH	*2, *3, *4 G0C2R2JA0026
L7651	G0C100JA0019	INDUCTOR	[MAVD] *2, *3, *4
LB0701	J0JBC0000041	FILTER	[MAVD] *4
LB1104	J0JKB0000028	FILTER	J0JKB0000027
LB1105	J0JKB0000028	FILTER	J0JKB0000027
LB1106	J0JHC0000070	FILTER	[MAVD]
LB1111	J0JHC0000070	FILTER	[MAVD]
LB4001	J0JBC0000070	FILTER	[MAVD]
LB4002	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
LB4003	J0JBC0000070	FILTER	[MAVD]
LB4004	J0JBC0000070	FILTER	[MAVD]
LB4005	J0JBC0000070	FILTER	[MAVD]
LB5001	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
LB5002	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
LB5003	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
LB5004	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
LB5005	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
LB5006	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
LB7301	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	*2, *3, *4 D0GBR00JA017
LB7303	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	*2, *3, *4 D0GBR00JA017
LB7602	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
LB7603	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
LR1101	J1ZZA0000001	FILTER	
P1102	K2AA2K000012	AC INLET	⚠ [MAVD]
P1501	VJS3837A002	CONNECTOR (FEMALE) 2P	K1KB02A00035
P2501	VJP3835E012	CONNECTOR (MALE) 12P	[MAVD] K1KA12A00127

Ref. No.	Part No.	Part Name & Description	Remarks
P2502	VJS3537A009G	CONNECTOR (FEMALE) 9P	K1MN09A00012
P4002	VJS3537A006G	CONNECTOR (FEMALE) 6P	K1MN06A00034
P4003	VJS3837A002	CONNECTOR (FEMALE) 2P	K1KB02A00035
P5001	VJS3537A010G	CONNECTOR (FEMALE) 10P	K1MN10A00036
PK0701	VJR0826E009W	CONNECTOR (MALE) 9P	K1MR09A00028
PK7301	VJR0777B007W	CONNECTOR (MALE) 7P	K1MM07B00002
PK7302	VJR0777B006W	CONNECTOR (MALE) 6P	K1MM06B00002
PP0701	VJP3589E004B	CONNECTOR (MALE) 4P	K1KA04B00135
PP3001	VJP3186A018W	CONNECTOR (MAIL) 18P	K1KA18A00046
PP3002	VJP3042G004W	CONNECTOR (MALE) 4P	[MAVD] K1KA04A00176
PP3901	K1KA03A00157	CONNECTOR	[MAVD]
PP3902	VJP3042G014W	CONNECTOR (MALE) 14P	K1KA14A00098
PP3904	VJP3042G016W	CONNECTOR (MALE) 16P	K1KA16A00113
PP3905	VJP3042G014W	CONNECTOR (MALE) 14P	K1KA14A00098
PP3906	VJP3042G014W	CONNECTOR (MALE) 14P	K1KA14A00098
Q0702	2SD0601A-S	TRANSISTOR	2SD0601ASL
Q1001	2SD602A-R	TRANSISTOR	2SD0602AR
Q1002	2SC1959-Y	TRANSISTOR	
Q1003	2SB0710A0L	TRANSISTOR	
Q1004	2SD0601A	TRANSISTOR	2SD0601A0L
Q1005	2SC1959-Y	TRANSISTOR	
Q1006	2SC1959-Y	TRANSISTOR	
Q1007	2SD602A-R	TRANSISTOR	2SD0602AR
Q1008	2SC1959-Y	TRANSISTOR	
Q1009	2SC1959-Y	TRANSISTOR	
Q1010	2SC1959-Y	TRANSISTOR	
Q1011	2SC1959-Y	TRANSISTOR	
Q1101	2SK2876	TRANSISTOR	[MAVD]
Q1102	B1DEDR000003	TRANSISTOR	
Q1103	2SC3311ASA	TRANSISTOR	
Q1104	2SD1992A-R	TRANSISTOR	
Q1201	PS2561L2V13W	PHOTO COUPLER	⚠
Q1501	PNB2301MBV	TRANSISTOR	
Q1502	PNB2301MAV	TRANSISTOR	
Q3002	2SB709A	TRANSISTOR	2SB0709A
Q3003	2SD0601A	TRANSISTOR	2SD0601A0L
Q3007	2SD0601A	TRANSISTOR	2SD0601A0L
Q3010	2SD0601A	TRANSISTOR	2SD0601A0L
Q3501	2SB709A	TRANSISTOR	2SB0709A
Q3502	2SB709A	TRANSISTOR	2SB0709A
Q4001	2SB0710A0L	TRANSISTOR	
Q4002	2SD602A-R	TRANSISTOR	2SD0602AR
Q4003	2SD1149	TRANSISTOR	
Q4004	2SD0601A	TRANSISTOR	2SD0601A0L
Q6002	2SB709A	TRANSISTOR	2SB0709A
Q6004	2SB709A	TRANSISTOR	2SB0709A
Q6005	XN6501	TRANSISTOR-TRANSISTOR	XN06501
Q6007	2SD1819A0L	TRANSISTOR	
Q6008	2SD0601A	TRANSISTOR	2SD0601A0L
Q6009	2SD0601A	TRANSISTOR	2SD0601A0L
Q7601	2SD0601A	TRANSISTOR	*1 2SD0601A0L

[illegible]	[illegible]	[illegible]	[illegible]

Ref. No.	Part No.	Part Name & Description	Remarks
QR1002	UN2212	TRANSISTOR-RESISTOR	UNR2212
QR1003	UNR211200L	TRANSISTOR RESISTOR	[MAVD]
QR1006	UNR221100L	TRANSISTOR RESISTOR	
QR3003	UNR221300L	TRANSISTOR RESISTOR	
QR3005	UN2113	TRANSISTOR-RESISTOR	UNR2113
QR3006	UN2113	TRANSISTOR-RESISTOR	UNR2113
QR3007	UNR221100L	TRANSISTOR RESISTOR	
QR3011	UN2113	TRANSISTOR-RESISTOR	UNR2113
QR4002	UNR221100L	TRANSISTOR RESISTOR	
QR4003	XN1215	TWIN TRANSISTOR	XN01215
QR4005	UN2111	TRANSISTOR	UNR211100L
QR4501	UN2113	TRANSISTOR-RESISTOR	UNR2113
QR4502	UN2113	TRANSISTOR-RESISTOR	UNR2113
QR4503	XN0121600L	SILICON TRANSISTOR	[MAVD]
QR4504	XN0121600L	SILICON TRANSISTOR	[MAVD]
QR4507	UN2216	TRANSISTOR	UNR2216
QR6001	UN2215	TRANSISTOR-RESISTOR	UNR2215
QR6004	UNR221100L	TRANSISTOR RESISTOR	
R0701	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	*2
R0705	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	
R0707	ERJ3GEYJ393	M.RESISTOR CH 1/16W 39K	
R0708	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	
R0709	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	*4
R0711	ERJ3GEYJ181V	M.RESISTOR CH 1/16W 180	
R0713	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
R0714	ERJ3GEYJ562V	M.RESISTOR CH 1/16W 5.6K	*4 D0GB562JA002
R0715	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	
R0717	ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	
R0719	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	
R0725	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R0727	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
R0728	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	*2
R0729	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	*1, *2, *3
R0730	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	*1, *3
R0731	ERJ3GEYJ101	M.RESISTOR CH 1/16W 100	*4 D0GB101JA002
R0732	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	*4
R0740	ERJ3GEYG471V	M.RESISTOR CH 1/16W 470	*1, *2, *3
R0740	ERJ3GEYG271	M.RESISTOR CH 1/16W 270	*4
R0741	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	
R0742	ERJ8GEYJ151	M.RESISTOR CH 1/8W 150	
R0745	ERJ6GEYJ335	M.RESISTOR CH 1/10W 3.3M	
R1001	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	
R1002	ERDS2FJ103	C.RESISTOR 1/4W 10K	
R1003	ERJ6GEYJ273	M.RESISTOR CH 1/10W 27K	
R1005	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	
R1006	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R1007	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R1008	ERDS2FJ471	C.RESISTOR 1/4W 470	
R1009	ERDS2FJ471	C.RESISTOR 1/4W 470	
R1010	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R1011	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	
R1012	ERJ6GEYG622	M.RESISTOR CH 1/10W 6.2K	

Ref. No.	Part No.	Part Name & Description	Remarks
R1013	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	
R1014	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R1015	ERDS2TJ682T	C.RESISTOR 1/4W 6.8K	
R1016	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R1017	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R1018	ERJ6GEYG272V	M.RESISTOR CH 1/10W 2.7K	
R1019	ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	
R1021	ERJ6GEYG272V	M.RESISTOR CH 1/10W 2.7K	
R1022	ERDS2FJ151	C.RESISTOR 1/4W 150	
R1023	ERDS2FJ103	C.RESISTOR 1/4W 10K	
R1024	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	
R1025	ERDS2FJ151	C.RESISTOR 1/4W 150	
R1102	ERDS2TJ105T	C.RESISTOR 1/4W 1M	
R1103	ERDS2TJ105T	C.RESISTOR 1/4W 1M	
R1104	ERDS2FJ102	C.RESISTOR 1/4W 1K	
R1105	ERDS2FJ101	C.RESISTOR 1/4W 100	
R1106	ERG2SJ331	M.RESISTOR 2W 330	
R1107	ERDS2FJ101	C.RESISTOR 1/4W 100	
R1108	ERX1SJR51	M.RESISTOR 1W 0.51	
R1109	ER0S2CKF1801	M.RESISTOR 1/4W 180	
R1110	ERDS2FJ104	C.RESISTOR 1/4W 100K	
R1111	ERDS2FJ331	C.RESISTOR 1/4W 330	
R1112	ERDS2FJ3R3	C.RESISTOR 1/4W 3.3	
R1113	ERDS2FJ330	C.RESISTOR 1/4W 33	
R1201	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	
R1202	ERJ6GEYG271	M.RESISTOR CH 1/10W 270	
R1203	ERJ6GEYG223V	M.RESISTOR CH 1/10W 22K	
R1204	ERJ6GEYF123	M.RESISTOR CH 1/10W 12K	
R1205	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	
R1206	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	
R1207	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	
R1208	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	
R1209	ERJ6GEYG563V	M.RESISTOR CH 1/10W 56K	
R1501	ERDS2FJ121	C.RESISTOR 1/4W 120	
R1502	ERDS2TJ181	C.RESISTOR 1/4W 180	
R1503	ERJ6GEYJ273	M.RESISTOR CH 1/10W 27K	
R1504	ERJ6GEYJ273	M.RESISTOR CH 1/10W 27K	
R1505	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R1506	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R2501	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R2502	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	
R2503	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R2504	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R2505	ERJ6GEYG392	M.RESISTOR CH 1/10W 3.9K	
R2506	ERJ6GEYG105	M.RESISTOR CH 1/10W 1M	
R2507	ERJ6GEYJ274	M.RESISTOR CH 1/10W 270K	
R2508	ERJ6GEYG433	M.RESISTOR CH 1/10W 43K	
R2509	ERDS2FJ331	C.RESISTOR 1/4W 330	
R2511	ERJ6GEYG105	M.RESISTOR CH 1/10W 1M	
R2512	ERJ6GEYG105	M.RESISTOR CH 1/10W 1M	
R2517	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R2518	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R2519	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R2520	ERJ6GEYJ1R2	M.RESISTOR CH 1/10W 1.2	

Ref. No.	Part No.	Part Name & Description	Remarks
R2521	ERJ6GEYJ1R5	M.RESISTOR CH 1/10W 1.5	[MAVD]
R2522	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R2523	ERJ6GEYG912	M.RESISTOR CH 1/10W 9.1K	
R3001	ERJ6GEYJ622	M.RESISTOR CH 1/10W 6.2K	ERJ6GEYJ622V
R3003	ERJ6GEYG152	M.RESISTOR CH 1/10W 1.5K	
R3005	ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	
R3006	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R3010	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R3012	ERJ6GEYF333	M.RESISTOR CH 1/10W 33K	
R3014	ERJ3GEYJ182	M.RESISTOR CH 1/16W 1.8K	
R3018	ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	
R3019	ERJ6GEYJ273	M.RESISTOR CH 1/10W 27K	
R3020	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	
R3021	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
R3022	ERJ6GEYG392	M.RESISTOR CH 1/10W 3.9K	
R3024	ERJ3GEYJ332	M.RESISTOR CH 1/16W 3.3K	
R3025	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
R3028	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R3029	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	
R3030	ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	
R3035	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R3042	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R3043	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
R3044	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3046	ERJ6GEYJ153V	M.RESISTOR CH 1/10W 15K	
R3047	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R3051	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
R3053	ERJ3GEYJ560V	M.RESISTOR CH 1/16W 56	
R3054	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R3055	MCR03PZHJ561	M.RESISTOR CH 1/16W 560	
R3062	ERJ3GEYJ272	M.RESISTOR CH 1/16W 2.7K	
R3063	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3064	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3067	ERJ6GEYJ302V	M.RESISTOR CH 1/10W 3K	
R3073	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R3074	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
R3076	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R3501	ERJ3GEYG222	M.RESISTOR CH 1/16W 2.2K	
R3502	ERJ6GEYG152V	M.RESISTOR CH 1/10W 1.5K	
R3503	ERJ6GEYG122	M.RESISTOR CH 1/10W 1.2K	
R3504	ERJ3GEYG152V	M.RESISTOR CH 1/16W 1.5K	
R3505	ERJ3GEYG332V	M.RESISTOR CH 1/16W 3.3K	
R3506	ERJ3GEYG332V	M.RESISTOR CH 1/16W 3.3K	
R3507	ERJ3GEYG102V	M.RESISTOR CH 1/16W 1K	
R3508	ERJ3GEYG471V	M.RESISTOR CH 1/16W 470	
R3509	ERJ3GEYG102V	M.RESISTOR CH 1/16W 1K	
R3510	ERJ3GEYJ394V	M.RESISTOR CH 1/16W 390K	
R3511	ERJ3GEYG122	M.RESISTOR CH 1/16W 1.2K	
R3512	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3513	ER0S2CKF3900	M.RESISTOR 1/4W 39	
R4061	ERJ6GEYJ334	M.RESISTOR CH 1/10W 330K	
R4062	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R4063	ERJ6GEYJ241	M.RESISTOR CH 1/10W 240	
R4065	ERDS2FJ332	C.RESISTOR 1/4W 3.3K	

Ref. No.	Part No.	Part Name & Description	Remarks
R4066	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R4067	ERJ6GEYG821	M.RESISTOR CH 1/10W 820	
R4068	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R4069	ERJ3GEYJ273	M.RESISTOR CH 1/16W 27K	
R4070	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R4071	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R4072	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	
R4081	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	
R4082	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	
R4084	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R4085	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	
R4086	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	
R4087	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R4088	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R4501	ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	
R4502	ERJ3GEYJ563V	M.RESISTOR CH 1/16W 56K	
R4503	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R4504	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R4505	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	
R4506	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	
R4507	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	
R4508	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R4509	ERJ3GEYJ472	M.RESISTOR CH 1/16W 4.7K	
R4510	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R4511	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R4512	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R4513	ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	
R4514	ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	
R4515	ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	
R4516	ERJ6GEYJ563	M.RESISTOR CH 1/10W 56K	
R4517	ERJ6GEYJ511	M.RESISTOR CH 1/10W 510	
R4518	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R4519	ERJ6GEYG821	M.RESISTOR CH 1/10W 820	
R4520	ERJ6GEYJ124V	M.RESISTOR CH 1/10W 120K	
R4521	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R4522	ERJ6GEYJ511	M.RESISTOR CH 1/10W 510	
R4523	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R4524	ERJ6GEYJ303	M.RESISTOR CH 1/10W 30K	
R4525	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R4526	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R4530	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	
R4531	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R4532	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	
R4533	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R4534	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	
R4535	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	
R4536	ERJ3GEYJ104	M.RESISTOR CH 1/16W 100K	
R4537	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R4538	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R4539	ERJ3GEYJ362	M.RESISTOR CH 1/16W 3.6K	
R4540	ERJ3GEYJ223	M.RESISTOR CH 1/16W 22K	
R4543	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R6001	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R6002	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	

Ref. No.	Part No.	Part Name & Description	Remarks
R6003	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R6004	ERJ6GEYJ224	M.RESISTOR CH 1/10W 220K	
R6005	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R6008	ERJ3GEYJ473	M.RESISTOR CH 1/16W 47K	
R6009	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R6010	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R6011	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R6012	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R6013	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R6014	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	
R6015	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	
R6016	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	
R6017	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R6018	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R6019	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R6020	ERJ6GEYF393	M.RESISTOR CH 1/10W 39K	
R6021	ERJ6GEYJ273	M.RESISTOR CH 1/10W 27K	
R6022	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R6023	ERJ6GEYJ273	M.RESISTOR CH 1/10W 27K	
R6024	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R6025	ERJ6GEYJ433V	M.RESISTOR CH 1/10W 43K	
R6026	ERJ6GEYF393	M.RESISTOR CH 1/10W 39K	
R6027	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R6028	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R6029	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R6030	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R6031	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	
R6035	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	
R6036	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	
R6039	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	
R6040	ERDS2FJ102	C.RESISTOR 1/4W 1K	
R6041	ERJ3GEYJ102	M.RESISTOR CH 1/16W 1K	
R6043	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	
R6045	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	
R6046	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R6047	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R6048	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R6049	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R6051	ERJ6GEYJ564V	M.RESISTOR CH 1/10W 560K	
R6052	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R6053	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	
R6054	ERJ6GEYJ125V	M.RESISTOR CH 1/10W 1.2M	
R6055	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	
R6056	ERJ6GEYJ125V	M.RESISTOR CH 1/10W 1.2M	
R6057	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	
R6058	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	
R6059	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	
R6060	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R6061	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R6062	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R6063	ERJ6GEYF473	M.RESISTOR CH 1/10W 47K	
R6064	ERJ6GEYJ225	M.RESISTOR CH 1/10W 2.2M	
R6065	ERJ6GEYJ224	M.RESISTOR CH 1/10W 220K	
R6066	ERJ6GEYJ273	M.RESISTOR CH 1/10W 27K	

Ref. No.	Part No.	Part Name & Description	Remarks
R6067	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	
R6068	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R6069	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	
R6071	ERJ6GEYG183	M.RESISTOR CH 1/10W 18K	
R6072	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R6073	ERJ6GEYJ474V	M.RESISTOR CH 1/10W 470K	
R6074	ERDS2FJ471	C.RESISTOR 1/4W 470	
R6075	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R6076	ERJ6GEYJ153V	M.RESISTOR CH 1/10W 15K	
R6077	ERJ3GEYJ105	M.RESISTOR CH 1/16W 1M	
R6078	ERJ3GEYJ471	M.RESISTOR CH 1/16W 470	
R6081	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R7301	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	*1 D0GBR00JA017
R7302	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	*2, *3, *4
R7304	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	*1
R7305	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	*1
R7305	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	*2, *3, *4
R7306	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	*1
R7306	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	*2, *3, *4
R7307	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	*1
R7308	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	*1
R7309	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	*1
R7311	ERJ6GEYJ752	M.RESISTOR CH 1/10W 7.5K	*1
R7312	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	*1
R7313	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	*1
R7314	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	*1
R7315	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	*1 D0GBR00JA017
R7316	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	*1
R7316	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	*2, *3, *4
R7317	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	*1 D0GBR00JA017
R7318	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	*1 D0GBR00JA017
R7319	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	*1
R7320	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	*1
R7324	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	*2, *3, *4
R7325	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	*2, *3, *4
R7327	ERJ3GEYJ822V	M.RESISTOR CH 1/16W 8.2K	*2, *3, *4 D0GB822JA002
R7328	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	*2, *3, *4
R7329	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	*2, *3, *4
R7501	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	
R7502	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	
R7503	ERJ6GEYJ432V	M.RESISTOR CH 1/10W 4.3K	
R7504	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	
R7505	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	
R7506	ERJ6GEYJ432V	M.RESISTOR CH 1/10W 4.3K	
R7507	ERDS2FJ680	C.RESISTOR 1/4W 68	
R7508	ERDS2FJ680	C.RESISTOR 1/4W 68	
R7509	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R7510	ERDS2FJ821	C.RESISTOR 1/4W 820	
R7511	ERDS2FJ821	C.RESISTOR 1/4W 820	
R7512	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R7513	ERJ6GEYJ303	M.RESISTOR CH 1/10W 30K	
R7514	ERJ6GEYJ303	M.RESISTOR CH 1/10W 30K	
R7515	ERJ6GEYJ303	M.RESISTOR CH 1/10W 30K	
R7516	ERJ6GEYJ303	M.RESISTOR CH 1/10W 30K	

Ref. No.	Part No.	Part Name & Description	Remarks
R7517	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R7518	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R7519	ERJ6GEYJ432V	M.RESISTOR CH 1/10W 4.3K	
R7521	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R7522	ERJ6GEYF822	M.RESISTOR CH 1/10W 8.2K	
R7523	ERJ6GEYF123	M.RESISTOR CH 1/10W 12K	
R7533	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R7534	ERJ6GEYG181	M.RESISTOR CH 1/10W 180	
R7535	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R7536	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	
R7537	ERJ6GEYF123	M.RESISTOR CH 1/10W 12K	
R7538	ERJ6GEYF123	M.RESISTOR CH 1/10W 12K	
R7601	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R7602	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R7603	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R7604	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R7605	ERDS2FJ331	C.RESISTOR 1/4W 330	
R7606	ERDS2FJ331	C.RESISTOR 1/4W 330	
R7607	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R7608	ERJ6GEYJ151V	M.RESISTOR CH 1/10W 150	
R7609	ERDS2FJ101	C.RESISTOR 1/4W 100	
R7610	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R7612	ERJ6GEYJ151V	M.RESISTOR CH 1/10W 150	
R7613	ERJ6GEYF561	M.RESISTOR CH 1/10W 560	*1
R7614	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	*1
R7615	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R7616	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R7655	ERDS2FJ222	C.RESISTOR 1/4W 2.2K	
S1501	K0G934A00002	SWITCH	K0ZZ00000452
S1502	VST0325	CASSETTE DET. SWITCH	K0L1BA000026
S7501	EVQ11G07K	SWITCH	
S7502	EVQ11G07K	SWITCH	
S7503	EVQ11404M	SWITCH	
S7504	EVQ11404M	SWITCH	
S7505	EVQ11L07B	SWITCH	
S7507	K0C111A00003	SWITCH	
S7510	EVQ11G07K	SWITCH	
S7511	EVQ11L07B	SWITCH	
S7512	EVQ11G07K	SWITCH	
S7513	EVQ11L07B	SWITCH	
S7514	EVQ11G07K	SWITCH	
S7515	EVQ11L07B	SWITCH	
T0701	EQV5EC082P	TRANSFORMER	*1, *3
T0701	EQV5EC083P	TRANSFORMER	*2
T0701	EQV5EC081P	TRANSFORMER	*4
T1101	ETS29AZ286AC	SWITCHING TRANSFORMER	⚠ [MAVD]
T4002	EQQ7QF024P	TRANSFORMER	
TU7601	ENG47327G1	TUNER	⚠ [MAVD] *1, *3
TU7601	ENG47328G1	TUNER	⚠ [MAVD] *2
TU7601	ENG47329G1	TUNER	⚠ [MAVD] *4

Ref. No.	Part No.	Part Name & Description	Remarks
VR0701	EVNCYAA03B14	V.RESISTOR 10K	
VR7301	EVNCYAA03B14	V.RESISTOR 10K	*1
X0701	VLF1416	FILTER	*1, *3 J0B4045A0002
X0701	VLF1417	FILTER	*2 J0B4155A0003
X0701	VLF1430	TRANSFORMER	*4 J0B3955A0001
X0702	VLF1431	TRANSFORMER	*4 J0B4055A0001
X0704	VLF1493	FILTER	*1, *3
X0704	VLF1495	FILTER	*2
X0704	VLF1497	TRANSFORMER	*4
X3001	H0D443400031	CRYSTAL OSCILLATOR	[MAVD]
X6001	VSX1022	CRYSTAL OSCILLATOR	
X6002	H0H200500011	CRYSTAL OSCILLATOR	[MAVD]
X7301	H0H400400006	CRYSTAL OSCILLATOR	*1
X7302	H0D245500016	CRYSTAL OSCILLATOR	[MAVD] *2, *3, *4
		MISCELLANEOUS	
	EYF52BC	FUSE HOLDER	
	EYF52BC	FUSE HOLDER	
	VMP6823	INLET ANGLE	[MAVD]
	VSC5227	HA CASE	[MAVD]
	VSC4998	HA ANGLE	
	VMP4894	SUPPORT ANGLE	FOR DECODER C.B.A. *1
	VSC4752	SHIELD CASE (MAIN)	FOR NICAM DECODER C.B.A. *2, *3, *4
	VMP5897	CONNECTING ANGLE	FOR TV DEMODULATOR C.B.A.
■	VEP03G10A	I/O C.B.A.	(RTL)[MAVD]
C3901	ECJ1VC1H470J	C.CAPACITOR CH 50V 47P	
C3902	ECJ1VC1H270J	C.CAPACITOR CH 50V 27P	
C3903	ECJ1VC1H040C	C.CAPACITOR CH 50V 4P	[MAVD]
C3904	ECJ1VC1H150J	C.CAPACITOR CH 50V 15P	
C3905	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3906	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3907	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3908	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3909	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3910	ECJ1VB0J105K	C.CAPACITOR CH 6.3V 1U	
C3911	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3912	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3913	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3914	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3915	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3916	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3917	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3918	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3919	ECEA0JKS331	E.CAPACITOR 6.3V 330U	
C3920	ECJ1VB0J105K	C.CAPACITOR CH 6.3V 1U	
C3921	ECEA0JKS331	E.CAPACITOR 6.3V 330U	
C3922	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3923	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
C3924	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3926	ECJ2VF1H104Z	C.CAPACITOR CH 50V 0.1U	
C3927	ECEA0JKS331	E.CAPACITOR 6.3V 330U	
C3928	ECJ2VF1H104Z	C.CAPACITOR CH 50V 0.1U	
C4901	ECJ1VC1H470J	C.CAPACITOR CH 50V 47P	
C4902	ECJ1VC1H470J	C.CAPACITOR CH 50V 47P	
C4903	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	ECJ1XC1H471J
C4904	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	ECJ1XC1H471J
C4907	ECJ1VC1H470J	C.CAPACITOR CH 50V 47P	
C4908	ECJ1VC1H470J	C.CAPACITOR CH 50V 47P	
C4909	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	ECJ1XC1H471J
C4910	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	ECJ1XC1H471J
C4916	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	ECJ1XC1H471J
C4918	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	ECJ1XC1H471J
D3901	MA2C165001VT	DIODE	
D3902	MA4075N-M	DIODE	
D3903	MA4075N-M	DIODE	
IC3901	C1AB00001614	IC	[MAVD]
JK4901	VJS1470	CONNECTOR (FEMALE) 21P	K1FB121A0002
JK4902	VJS1470	CONNECTOR (FEMALE) 21P	K1FB121A0002
JK4903	VJJ0416	JACK	K2HA307A0001
JK4904	VJJ0574	S TERMINAL	K1CB104A0009
K3901	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3905	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3907	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3917	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3920	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3921	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K3922	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
K4903	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
L3901	G0C330JA0019	INDUCTOR	
L3902	VLQ0163J390	COIL 39UH	G1C390J00001
L3903	VLQ0163J820	COIL 82UH	G1C820J00002
L4901	VLQ0599JR22	COIL 0.22UH	
LB4901	J0JBC0000041	FILTER	[MAVD]
LB4902	J0JBC0000041	FILTER	[MAVD]
LB4903	J0JBC0000041	FILTER	[MAVD]
LB4904	J0JBC0000041	FILTER	[MAVD]
LB4905	J0JBC0000041	FILTER	[MAVD]
LB4906	J0JBC0000041	FILTER	[MAVD]
LB4908	J0JBC0000041	FILTER	[MAVD]
LB4909	J0JBC0000041	FILTER	[MAVD]
LB4910	J0JBC0000041	FILTER	[MAVD]
LB4911	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	
LB4912	J0JBC0000041	FILTER	[MAVD]
LB4913	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	
PS3901	K1KB03B00007	CONNECTOR	[MAVD]

Ref. No.	Part No.	Part Name & Description	Remarks
PS3902	VJS3042F014W	CONNECTOR (FEMALE) 14P	K1KB14B00018
PS3904	VJS3042F016W	CONNECTOR (FEMALE) 16P	K1KB16B00023
PS3905	VJS3042F014W	CONNECTOR (FEMALE) 14P	K1KB14B00018
Q3901	2SD0601A	TRANSISTOR	2SD0601A0L
Q3902	2SD0601A	TRANSISTOR	2SD0601A0L
Q3903	2SD0601A	TRANSISTOR	2SD0601A0L
Q3904	2SD0601A	TRANSISTOR	2SD0601A0L
Q4901	2SD13280VL	TRANSISTOR	
QR3901	UN2212	TRANSISTOR-RESISTOR	UNR2212
QR3902	UN2215	TRANSISTOR-RESISTOR	UNR2215
R3901	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3902	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3903	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3904	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3905	ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	
R3906	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3907	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3908	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R3909	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	
R3910	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R3912	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R3913	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R3914	ERJ6GEYF393	M.RESISTOR CH 1/10W 39K	
R3915	ERJ6GEYJ472V	M.RESISTOR CH 1/10W 4.7K	
R3916	ERJ6GEYG183	M.RESISTOR CH 1/10W 18K	
R3917	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R3918	ERJ6GEYJ474V	M.RESISTOR CH 1/10W 470K	
R3919	ERDS2FJ471	C.RESISTOR 1/4W 470	
R3920	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R3921	ERJ6GEYJ153V	M.RESISTOR CH 1/10W 15K	
R3922	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R3923	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R3927	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R3928	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R4901	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	
R4902	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	
R4904	ERJ6GEYJ750	M.RESISTOR CH 1/10W 75	
R4905	ERJ6GEYJ750	M.RESISTOR CH 1/10W 75	
R4906	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	
R4907	ERJ6GEYJ471	M.RESISTOR CH 1/10W 470	
R4908	ERJ6GEYJ750	M.RESISTOR CH 1/10W 75	
R4915	ERJ6GEYJ750	M.RESISTOR CH 1/10W 75	
R4916	ERJ6GEYJ750	M.RESISTOR CH 1/10W 75	
R4917	ERJ6GEYJ750	M.RESISTOR CH 1/10W 75	
R4918	ERJ6GEYJ750	M.RESISTOR CH 1/10W 75	
R4919	ERJ6GEYJ750	M.RESISTOR CH 1/10W 75	
S4901	VSS0513	SLIDE SWITCH	K0D142A00023
		MISCELLANEOUS	
	XTV3+8GFZ	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks
	XTV3+8GFZ	SCREW	
	XTV3+8GFZ	SCREW	
	VMC1737	RF EARTH SPRING	[MAVD]
	VJH1196	JACK BOARD	[MAVD]
■	VEP03G12A	Y/C SEPA C.B.A.	(RTL)[MAVD]
C3301	ECEA1CKS100	E.CAPACITOR 16V 10U	
C3302	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3303	ECJ1VB1H102K	C.CAPACITOR CH 50V 1000P	
C3304	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3305	ECEA0JKS470	E.CAPACITOR 6.3V 47U	
C3306	ECQB1H153JF3	P.CAPACITOR 50V 0.015U	
C3307	ECUX1H471JCV	C.CAPACITOR CH 50V 470P	ECJ1XC1H471J
C3308	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3309	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3310	ECUX1H681JCV	C.CAPACITOR CH 50V 680P	
C3311	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3312	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3313	ECEA1CKS100	E.CAPACITOR 16V 10U	
C3314	ECJ1VC1H330J	C.CAPACITOR CH 50V 33P	[MAVD]
C3315	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C3316	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3317	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3318	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3319	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3320	ECJ2YB1C474K	C.CAPACITOR CH 16V 0.47U	
C3321	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3322	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3324	ECJ1VC1H120J	C.CAPACITOR CH 50V 12P	
C3325	ECUX1H080DCV	C.CAPACITOR CH 50V 8P	
C3326	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3327	ECEA1CKS100	E.CAPACITOR 16V 10U	
C3328	ECJ1VC1H120J	C.CAPACITOR CH 50V 12P	
C3329	ECEA1CKS100	E.CAPACITOR 16V 10U	
C3330	ECUX1H080DCV	C.CAPACITOR CH 50V 8P	
C3331	ECJ1VC1H120J	C.CAPACITOR CH 50V 12P	
C3332	ECJ1VC1H030C	C.CAPACITOR CH 50V 3P	
C3333	ECJ1VC1H470J	C.CAPACITOR CH 50V 47P	
C3334	ECJ1VC1H560J	C.CAPACITOR CH 50V 56P	
C3335	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3336	ECEA0JKS470	E.CAPACITOR 6.3V 47U	
C3337	ECJ1VC1H330J	C.CAPACITOR CH 50V 33P	[MAVD]
C3338	ECUX1H100DCV	C.CAPACITOR CH 50V 10P	
C3339	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3340	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C3341	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3342	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3343	ECJ1VB1H103K	C.CAPACITOR CH 50V 0.01U	
C3344	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	
C3345	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C3346	ECJ1VB1C104K	C.CAPACITOR CH 16V 0.1U	

[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name & Description	Remarks
C3347	ECJ1VB1H472K	C.CAPACITOR CH 50V 4700P	
C3348	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C3349	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3350	ECEA1CKS100	E.CAPACITOR 16V 10U	
C3351	ECUV0J475KBN	C.CAPACITOR CH 6.3V 4.7U	F1J0J4750004
C3352	ECJ2YB1A105K	C.CAPACITOR CH 10V 1U	
C3353	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C3354	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3355	ECEA1CKS100	E.CAPACITOR 16V 10U	
C3356	ECJ1VF1H103Z	C.CAPACITOR CH 50V 0.01U	
C3357	ECJ1VF1C104Z	C.CAPACITOR CH 16V 0.1U	
C3358	ECJ1VC1H330J	C.CAPACITOR CH 50V 33P	[MAVD]
D3301	MA8027H	DIODE	[MAVD] MAZ80270H
D3302	MA3Z142K0LG	DIODE	[MAVD]
IC3301	C0BBBA000057	IC	[MAVD]
IC3302	TCHC4538AF	IC	C0JBAM000069
IC3303	C1AA00000600	IC	[MAVD]
IC3304	TA1225N	IC	C1AA00000343
L3301	G0C330JA0019	INDUCTOR	
L3302	G0C220JA0019	INDUCTOR	
L3303	VLQ0599J270	COIL 27UH	G0C270JA0026
L3304	G0C220JA0019	INDUCTOR	
L3305	G0C220JA0019	INDUCTOR	
L3306	VLQ0599J470	COIL 47UH	G0C470JA0026
L3307	VLQ0599J390	COIL 39UH	G0C390JA0026
L3308	G0C220JA0019	INDUCTOR	
L3309	G0C100JA0019	INDUCTOR	[MAVD]
L3310	VLQ0599J270	COIL 27UH	G0C270JA0026
L3311	VLQ0599J150	COIL 15UH	G0C150JA0026
L3312	G0C220JA0019	INDUCTOR	
L3313	G0C220JA0019	INDUCTOR	
L3314	G0C100JA0019	INDUCTOR	[MAVD]
LB3301	J0JCC0000120	FILTER	
LB3302	VLP0196	CHIP INDUCTOR	J0JHC0000028
LB3303	J0JCC0000120	FILTER	
LB3304	J0JCC0000120	FILTER	
LB3305	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
PS3301	K1KB04B00023	CONNECTOR	[MAVD]
PS3302	VJS3186B018	CONNECTOR (FEMALE) 18P	K1KB18B00016
Q3301	2SB709A	TRANSISTOR	2SB0709A
Q3302	2SC3930	CHIP TRANSISTOR	
Q3303	2SB709A	TRANSISTOR	2SB0709A
Q3304	2SD0601A	TRANSISTOR	2SD0601A0L
Q3305	2SD0601A	TRANSISTOR	2SD0601A0L
Q3306	2SB709A	TRANSISTOR	2SB0709A
Q3307	2SB709A	TRANSISTOR	2SB0709A
Q3308	XN5601	TRANSISTOR	XN05601
Q3309	2SB709A	TRANSISTOR	2SB0709A

Ref. No.	Part No.	Part Name & Description	Remarks
R3301	ERJ6GEYG562	M.RESISTOR CH 1/10W 5.6K	
R3302	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R3303	ERJ6GEYG104	M.RESISTOR CH 1/10W 100K	
R3304	ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	
R3305	ERJ6GEYG391	M.RESISTOR CH 1/10W 390	
R3306	ERJ6GEYG114	M.RESISTOR CH 1/10W 0.11M	
R3307	ERJ6GEYJ223	M.RESISTOR CH 1/10W 22K	
R3308	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R3309	ERJ6GEYG331	M.RESISTOR CH 1/10W 330	
R3310	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R3311	ERJ6GEYJ101V	M.RESISTOR CH 1/10W 100	
R3312	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R3313	ERJ6GEY0R00V	M.RESISTOR CH 1/10W 0	D0GBR00JA017
R3314	ERJ6GEYG103	M.RESISTOR CH 1/10W 10K	
R3315	ERJ6GEYG681	M.RESISTOR CH 1/10W 680	
R3316	ERJ6GEYG621V	M.RESISTOR CH 1/10W 620	
R3317	ERJ6GEYF561	M.RESISTOR CH 1/10W 560	
R3318	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3319	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	
R3320	ERJ6GEYG681	M.RESISTOR CH 1/10W 680	
R3321	ERJ6GEYG182	M.RESISTOR CH 1/10W 1.8K	
R3322	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3323	ERJ6GEYG182	M.RESISTOR CH 1/10W 1.8K	
R3324	ERJ6GEYG182	M.RESISTOR CH 1/10W 1.8K	
R3325	ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	
R3326	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3327	ERJ6GEYG391	M.RESISTOR CH 1/10W 390	
R3328	ERJ6GEYG272	M.RESISTOR CH 1/10W 2.7K	
R3329	ERJ6GEYJ751V	M.RESISTOR CH 1/10W 750	
R3330	ERJ6GEYJ621V	M.RESISTOR CH 1/10W 620	[MAVD]
R3331	ERJ6GEYG182	M.RESISTOR CH 1/10W 1.8K	
R3332	ERJ6GEYG222	M.RESISTOR CH 1/10W 2.2K	
R3333	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3334	ERJ6GEYG183	M.RESISTOR CH 1/10W 18K	
R3335	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
R3336	ERJ6GEYG821	M.RESISTOR CH 1/10W 820	
R3337	ERJ6GEYG391	M.RESISTOR CH 1/10W 390	
R3338	ERJ6GEYG102	M.RESISTOR CH 1/10W 1K	
VR3001	EVNCYAA03B15	V.RESISTOR 100K	
VR3002	EVNCYAA03B54	V.RESISTOR 50K	
		MISCELLANEOUS	
	VSC5228	SHIELD CASE (A)	[MAVD]
	VSC5229	SHIELD CASE (B)	[MAVD]
	XTV26+6F	SCREW	
	XTV26+6F	SCREW	
	VMT0543	CUSHION	[MAVD]
■	VEP04800B	FRONT C.B.A.	(RTL)[MAVD]

Ref. No.	Part No.	Part Name & Description	Remarks
C4803	ECKT1H102KB	C.CAPACITOR 50V 1000P	
C4804	ECKT1H102KB	C.CAPACITOR 50V 1000P	
C4805	ECQV1H104JL3	P.CAPACITOR 50V 0.1U	
IC4801	PNA4618M10VT	IC	[MAVD]
JK4801	K2HA307A0003	JACK	[MAVD]
JK4802	VJJ0574	S TERMINAL	K1CB104A0009
PS4801	VJS3042F014W	CONNECTOR (FEMALE) 14P	K1KB14B00018
R4801	ERDS2FJ750	C.RESISTOR 1/4W 75	
R4802	ERDS2FJ471	C.RESISTOR 1/4W 470	
R4803	ERDS2FJ471	C.RESISTOR 1/4W 470	
R4804	ERDS2FJ750	C.RESISTOR 1/4W 75	
R4805	ERDS2FJ750	C.RESISTOR 1/4W 75	
R4807	ERDS2FJ822	C.RESISTOR 1/4W 8.2K	
R4808	ERDS2FJ562	C.RESISTOR 1/4W 5.6K	
S4802	EVQ11L07B	SWITCH	
S4803	EVQ11L07B	SWITCH	
		MISCELLANEOUS	
	VMC1721	EARTH SPRING	[MAVD]
	VGQ6104	FRONT PCB HOLDER(L)	
■	----------	CYLINDER STATOR C.B.A.	
		MISCELLANEOUS	
	VJS3537F009G	CONNECTOR (FEMALE) 9P	
	HW-300A-DF	HALL IC	

12. SCHEMATIC DIAGRAM FOR PRINTING WITH LETTER SIZE

VIDEO MAIN SIGNAL PATH IN REC MODE

VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE

A-LINE

PS3302
Y/C C OUT
CNR OFF (H)
CORR SIGNAL
GND (DNR)
SEP IN
C SYNC
GND (DNR)
SEP C OUT
GND (DNR)
SEP Y OUT
GND (DNR)
FSC
GND (DNR)
DIGITAL 5V
MAIN IIC DATA
MAIN IIC CLOCK
TO LUMINANCE & CHROMINANCE/ AUDIO SECTION PP302(E-23)

IC3302
TCHC4538AFEL
(MULTIVIBRATOR)
V BLK
VR3001 100KB
R3301 5600
R3306 110K
C3306 0.015
H BLK
VR3002 50KB
TL3304
D3302 MA142K
TL3303
R3307 22K
C3307 470P
C3339 0.1
LB3302 VLP0196
C3344 0.1
L3301 33u
C3301 16V10
C3302 0.1
C3357 0.1

IC3303
TC90A79AN
L3302 22u
C3308 0.01
C3309 0.01
C3310 680P
C3312 0.1
C3313 16V10
LB3303 VLP0145
LB3304 VLP0145
C3311 0.1
R3309 330
R3308 0
C3315 0.01
R3310 100
R3311 100
C3314 33P
DAC
PLL DET
VCO
1/2
1/8
8fsc
4fsc
IIC BUS
(8fsc)
Y/C SEP. & SKEW
CNR
MIX ON
MIX OFF
LPF
PED. CLIP
DELAY
CORING
V-ENHANCER
PEAKING LINE N.C
LINE MEMORY
KILLER
INTERPOLATION
DYNAMIC COMB FILTER
SKEW CORRECT
ADC
SYNC CLAMP
CENTER BIAS
SKEW DET
C3316 0.01
C3317 0.01
C3318 0.1
C3319 0.1
C3320 0.47
R3312 0
R3313 0
C3321 0.1
C3322 0.1
R3314 10K
L3305 22u
LB3301 VLP0145
C3329 16V10
L3304 22u
C3326 0.1
C3327 16V10
R3320 680

IC3301
NJM2903M
+V
-V
R3302 22K
R3304 2700
R3305 390
R3303 100K
D3301 MA8027H
C3304 0.1
C3305 6V47
C3303 1000P

Q3302
2SC3930
(AMP)
R3315 680
R3316 620
R3317 560
Q3301
2SB709A
(INV.)
R3318 1K
L3303 27u
C3325 8P
C3324 12P
C3328 12P
R3319 3300
Q3303
2SB709A
(AMP)

L3308 22u
Q3305
2SD601A
(AMP)
R3326 1K
R3323 1800
R3328 2700
R3338 1K
R3331 1800
L3307 39u
L3310 27u
L3311 15u
C3333 47P
C3334 56P
C3337 33P
C3338 10P
R3329 750
Q3307
2SB709A
(BUFFER)
R3330 620
TL3301
L3309 10u
R3327 390
R3332 2200
Q3309
2SB709A
(AMP)
Q3308
XN5601
(AMP)
Q3304
2SD601A
(AMP)
C3335 0.1
C3336 6V47
R3325 2700
C3332 3P
R3322 1K
L3306 47u
R3324 1800
Q3306
2SB709A
(AMP)
R3321 1800
C3330 8P
C3331 12P
R3335 1K
R3334 18K
R3333 1K
C3340 0.01
C3341 0.1
C3342 0.1
C3345 0.01
C3346 0.1
C3347 4700P
C3348 0.01
R3336 820
C3343 0.01

IC3304
TA1225N
LIM + K
FO ADJ
B.P.F
VOB
VGG
S/H2
S/H1
AGC
APC
AGC DET
BIAS
APC DET
CLOCK LOGIC
PLL 4
CCD 906.5BIT
L3314 10u
R3337 390
C3353 0.01
C3356 0.01
C3358 33P
L3312 22u
L3313 22u
C3349 0.1
C3350 16V10
C3351 4.7
C3352 1.0
C3354 0.1
C3355 16V10

PS3301
GND (DNR)
VV C OUT
GND (DNR)
TO LUMINANCE & CHROMINANCE/ AUDIO SECTION PP302(F-23)

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKEST( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.(SP MODE)
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.(SP MODE)

NOTE:DO NOT ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
Y/C SEPARATION PACK SCHEMATIC DIAGRAM

Ⓟ :TO POWER TRANSFORMER SECTION
Ⓡ :TO POWER SUPPLY/RF SECTION
Ⓥ :TO LUMINANCE & CHROMINANCE/AUDIO SECTION
Ⓐ :TO Hi-Fi AUDIO SECTION
Ⓣ :TO TIMER SECTION

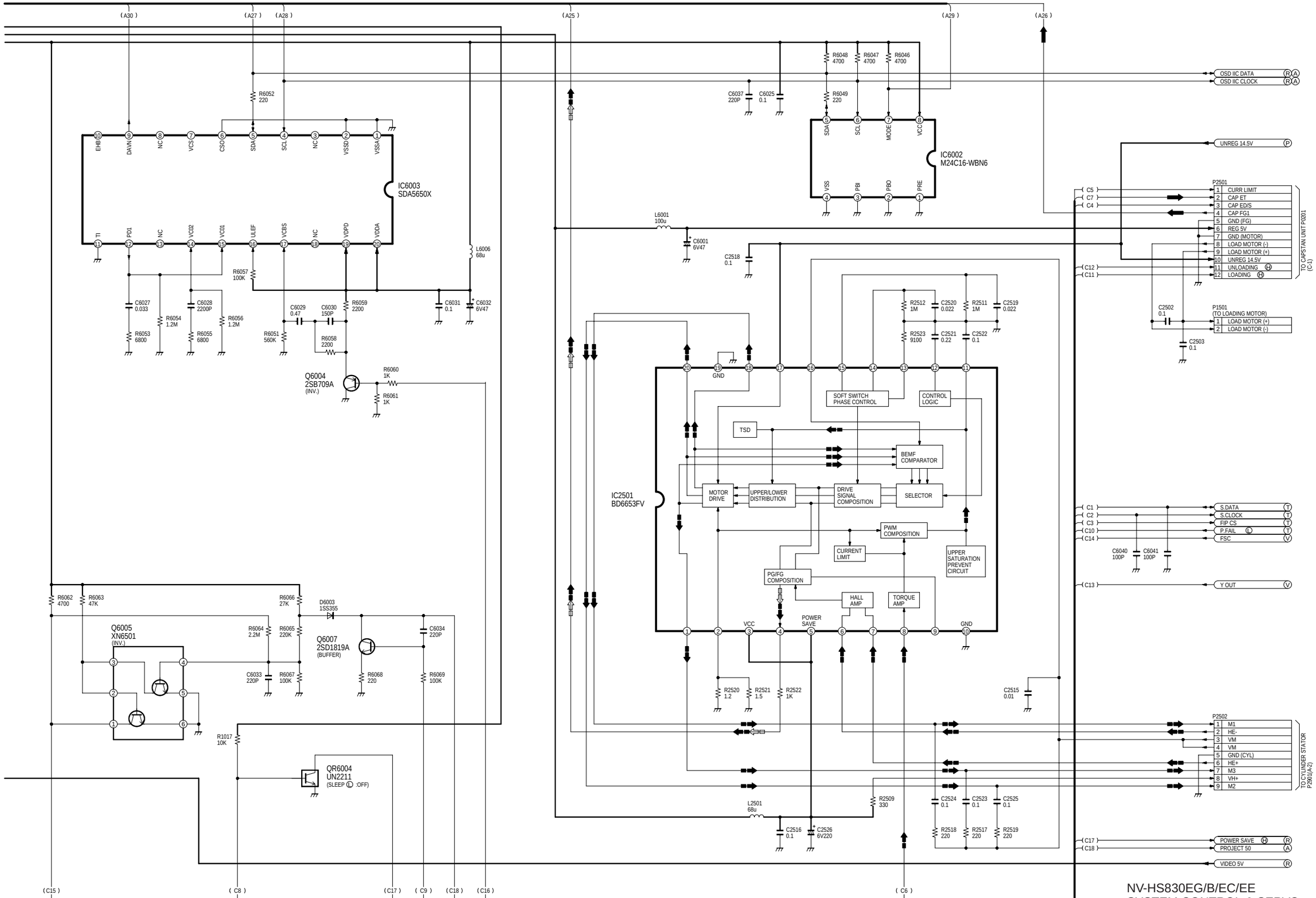
CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP

IC6001 M37970VXLJ

IC1502 RPI354N (S-REEL)
IC1501 RPI354N (T-REEL)

Q1501 PNB2301MBV (T-PHOTO)
Q1502 PNB2301MAV (S-PHOTO)
Q6008 2SD601A (AV1 PB:ON)
QR6001 UN2215 (AV1 PB Ⓛ:OFF)
Q6002 2SB709A (AMP)
Q6009 2SD601A (AMP)

S-VHS CASSETTE
S1502 VST0325
MODE SW S1501 K0G934A-00002
SENSOR D1501 SIR505S



NV-HS830EG/B/EC/EE SYSTEM CONTROL & SERVO SECTION SCHEMATIC DIAGRAM

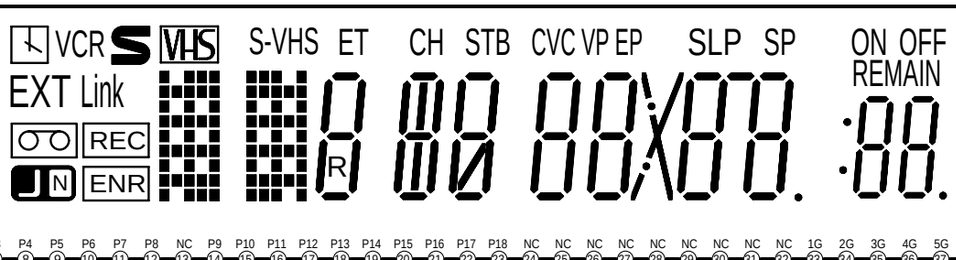
NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
SYSTEM CONTROL & SERVO
SECTION SCHEMATIC DIAGRAM

12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22

Ⓟ :TO POWER TRANSFORMER SECTION
Ⓡ :TO POWER SUPPLY/RF SECTION
Ⓢ :TO SYSTEM CONTROL & SERVO SECTION
Ⓐ :TO Hi-Fi AUDIO SECTION

DP7501
A2BD00000040



R7507 68
R7508 68
C7501 0.01
Ⓡ HEATER (+)
Ⓟ HEATER DC (-)
D7501 MA4220NM
C7502 50V10
R7511 820
R7510 820
Ⓡ FIP -29V
R7509 100

IC7501
M35502AFP

Ⓢ S.DATA
Ⓢ S.CLOCK
Ⓢ FIP CS
Ⓢ SAFETY TAB Ⓛ
SAFETY TAB
S7507 K0C111A00003
Ⓐ POWER SW
Ⓢ POWER KEY
R7521 22K
Ⓡ N.SW 5V
Ⓡ GND
Ⓢ P.FAIL Ⓛ
Ⓢ RESET Ⓛ
Ⓢ BACK UP 5V
Ⓐ SCT SW

R7533 22K
R7517 10K
R7518 10K
R7513 30K
R7515 30K
R7516 30K
R7514 30K
R7512 0
C7503 12P

IC7504
C0EBH0000218
(RESET)
C7511 0.1

IC7503
C0EBE0000211
(RESET)
C7504 6V100
C7510 0.01
R7535 10K
C7509 6800P

D7503 RB441PT-77
R7534 180
C7507 VCE0073
C7508 6V220

CH UP S7504 EVQ11404M
PAUSE S7503 EVQ11404M
PLAY S7511 EVQ11L07B
REW S7512 EVQ11G07K
R7506 4300
R7505 5600
R7504 8200
R7537 12K

CH DOWN S7502 EVQ11G07K
REC S7501 EVQ11G07K
STOP S7515 EVQ11L07B
TIMER REC S7513 EVQ11L07B
FF S7514 EVQ11G07K
R7503 4300
R7502 5600
R7501 8200
R7538 12K

EXT LINK S7510 EVQ11G07K
EJECT S7505 EVQ11L07B
R7519 4300
R7536 5600
R7522 8200
R7523 12K
NC

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE:DO NOT USE PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLESE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
TIMER SECTION SCHEMATIC DIAGRAM

VIDEO SIGNAL PATH

AUDIO SIGNAL PATH

(EE)
R0714 5600
R0732 4700
R0731 100
LB0701 VLP0147
R0713 0
R0740 470:EG/B/EC 270:EE
C0724 220P: EG/EC/EE 330P:B
R0717 470
R0711 180
C0707 50V2.2
R0745 3.3M
T0701 EVQ5EC082P:EG/EC EVQ5EC083P:B EVQ5EC081P:EE
R0729 10K
R0730 10K
R0701 100K
(EG/B/EC)
(EG/EC)
(B)
R0728 0
(B)
(EE)
R0709 100K
R0727 0
C0719 0.1
C0708 50V 0.47
C0717 33P
R0742 150
Q0702 2SD601A (AMP)
R0741 220
C0721 120P:EG/EC 82P:B 56P:EE
R0743 1K
PK0701
TO POWER SUPPLY/ RF SECTION DU7601 (D-10)

DU7601-19	SW1	1
DU7601-20	SW2	2
DU7601-21	———	3
DU7601-22	SIF/QPSK	4
DU7601-23	AFC S-CURVE	5
DU7601-24	TUNER VIDEO	6
DU7601-25	TUNER 5V	7
DU7601-26	———	8
DU7601-27	GND	9

IC0701 LA75503

BPF, BPF, LIM AMP, FM DET, DEEMPHP, AMP SW, EQ AMP, TRAP, S PLL, FIL CONT, VIDEO DET, APC DET, VIF AMP, IF AGC, LPF, VCO, FLL, AGC, 1ST SIF DET, 1ST AMP, RF AGC, AFT AMP

C0701 1
D0702 0
R0705 4700
R0708 10K
VR0701 10KB
R0707 39K
C0702 1000P
C0703 1
C0713 6V330
C0714 1
C0704 0.033
R0719 4700
C0712 0.1
X0704 VLF1493:EG/EC VLF1495:B VLF1497:EE
L0701 0.27u:EG/EC/EE 0.22u:B
(EE) X0702 VLF1431
X0701 VLF1416:EG/EC VLF1417:B VLF1430:EE
(EG/EC) K0701 56P
C0710 0.01
L0703 2.2u: EG/EC/EE 1.8u:B
R0725 100
C0715 3P: EG/EC/EE 12P:B
PP0701 (TO TUNER UNIT)

4MHz	1
AGC	2
IF	3
GND	4

C0711 16V22
R0715 22K

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
TV DEMODULATOR PACK SCHEMATIC DIAGRAM

VIDEO MAIN SIGNAL PATH IN REC MODE
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE
AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

Ⓡ :TO POWER SUPPLY/RF SECTION
Ⓢ :TO SYSTEM CONTROL & SERVO SECTION
Ⓐ :TO Hi-Fi AUDIO SECTION

(R) PS 5V
(S) PAL EP (H)
(S) D.A REC (H)
(S) ET REC (H)
(S) MUTE (H)
(A) AUDIO OUT (N)
(A) AUDIO IN (N)
(R) TUNER AUDIO (N)
(S) TRACKING ENV.
(S) HEAD SW
(A) GND (A)
LB4005 J0JBC0000070

P5001 (TO CYLINDER UNIT)
LP/EP R 1
LP/EP COM 2
LP/EP L 3
SP R 4
SP COM 5
SP L 6
GND (HA) 7
AUDIO HEAD L 8
AUDIO HEAD COM 9
AUDIO HEAD R 10

(A) AUDIO HEAD R
(A) AUDIO HEAD COM
(A) AUDIO HEAD L
(S) BIAS (L)

P4002 (TO A/C HEAD)
AUDIO ERASE IN 1
GND (NA) 2
A.HEAD (R) 3
A.HEAD (W) 4
CTL HEAD (-) 5
CTL HEAD (+) 6

(S) CTL HEAD (+)
(S) CTL HEAD (-)
(S) SHORT DET (L)
(S) V.EE (L)

P4003 (TO FULL ERASE HEAD)
FULL ERASE OUT 1
FULL ERASE IN 2

(R) BIAS 5V
(S) S-VHS (H)
(R) GND
(R) GND (HA)
(R) GND (HA2)
(R) GND (SYS)
(S) LP (H)

(A1) (A2) (A3) (A4) (A5) (A6) (A7) (A8) (A9) (A10) (A11) (A12) (A13) (A14) (A15) (A16) (A17) (B1) (B2) (B4) (B5) (B6) (B7) (B8)

R4081 8200
C4018 220P
T4002 EQQ7QF024P
C4019 0.022
C4021 1500P
R4082 3300
0.4 (-0.7)
0.4 (4.5)
Q4002 2SD602A (OSC)
L4002 68u
C4020 10V47
C4022 0.022
0.3 (4.8)
5.0 (4.3)
Q4001 2SB710A (BIAS (L):ON)
R4087 4700
C4023 10V22
R4086 6800
5.1
R4088 4700
C4024 16V10

0 (4.9)
5.1
QR4005 UN2111 (D.A.REC (H):OFF)
5.2 (-22.6)
C4017 100P
R4084 4700
0 (0.8)
0.7 (-22.8)
Q4003 2SD1149 (PB:ON)
0 (-13.7)
R4085 2200
0.7 (-22.8)
Q4004 2SD601A (PB:ON)
QR4003 XN1215 (PAL EP (H):ON)
1.3
0
1.2
0

C3518 0.01
L3019 0
L3018 0
L3017 0
R3074 0
R3076 0
C3063 6V47
R3503 1200
Q3501 2SB709A (AMP)
1.7
1.2

C3513 4.7
C3510 4.7
C3515 4.7
C3512 4.7
IC3502 M52065FP
GND
VCC
H
L
C3521 4.7
C3511 4.7

C3517 0.1
Q3007 2SD601A (AMP)
5.0
2.9
2.2
C3058 150P
R3054 0
L3013 180u
R3053 56
R3055 560
C3057 47P
R3051 0

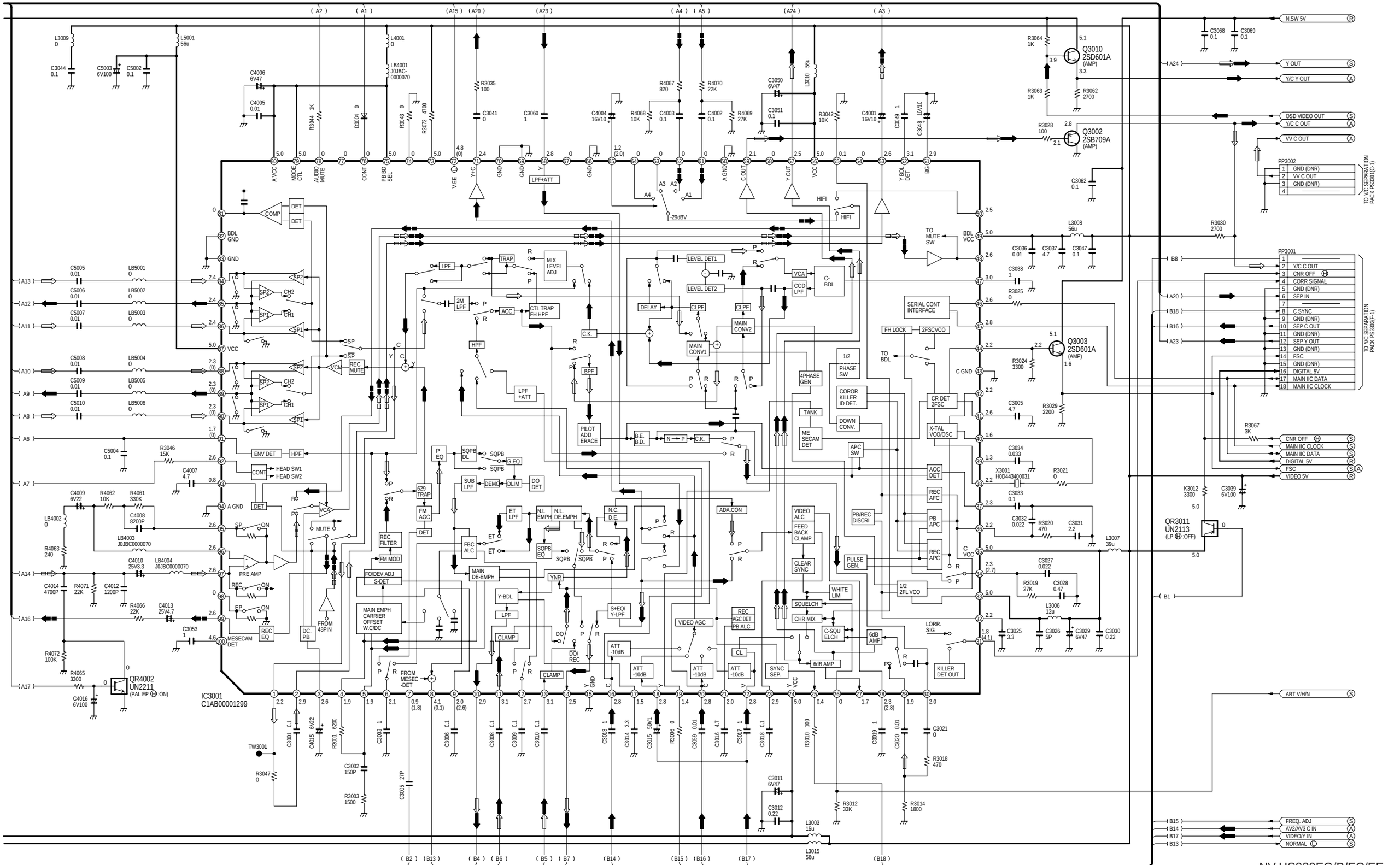
5.0
4.8
QR3005 UN2113 (VHS:ON)
0
QR3003 UN2213 (VHS:ON)
1.2
R3005 3300
L3002 82u
4.8 (0)
QR3007 UN2211 (PB:ON)
4.8
QR3006 UN2113 (PB:ON)
0.1 (4.9)
4.7 (0.2)
R3512 1K

R3022 3900
C3509 4.7
R3513 390
R3511 1200
R3510 390K
3.1
2.5
Q3502 2SB709A (AMP)

C3508 270P
C3505 270P
R3506 3300
R3505 3300
C3504 270P
R3509 1K
R3507 1K
R3508 470
C3506 82P
C3503 220P
R3504 1500
IC3501 AN3293S
SUB EMPHASIS
LOGIC
GND
VCC
SP
LP
PB
REC
C3501 4.7
C3502 4.7
C3507 6V47
C3516 0.1
R3501 2200
R3502 1500

NOTE:THE MEASUREMENT MODE OF THE DC VLOLTAGE IN THE BRACKETS( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.(SP MODE)

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.(SP MODE)

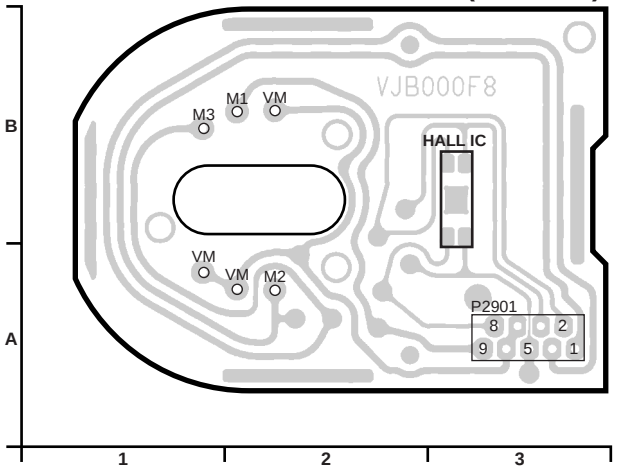


NV-HS830EG/B/EC/EE LUMINANCE & CHROMINANCE/AUDIO SECTION SCHEMATIC DIAGRAM

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE LUMINANCE & CHROMINANCE/AUDIO SECTION SCHEMATIC DIAGRAM

(VEM0715)



CYLINDER STATOR UNIT	
Integrated Circuit	
HALL IC	B-3
Connector	
P2901	A-3

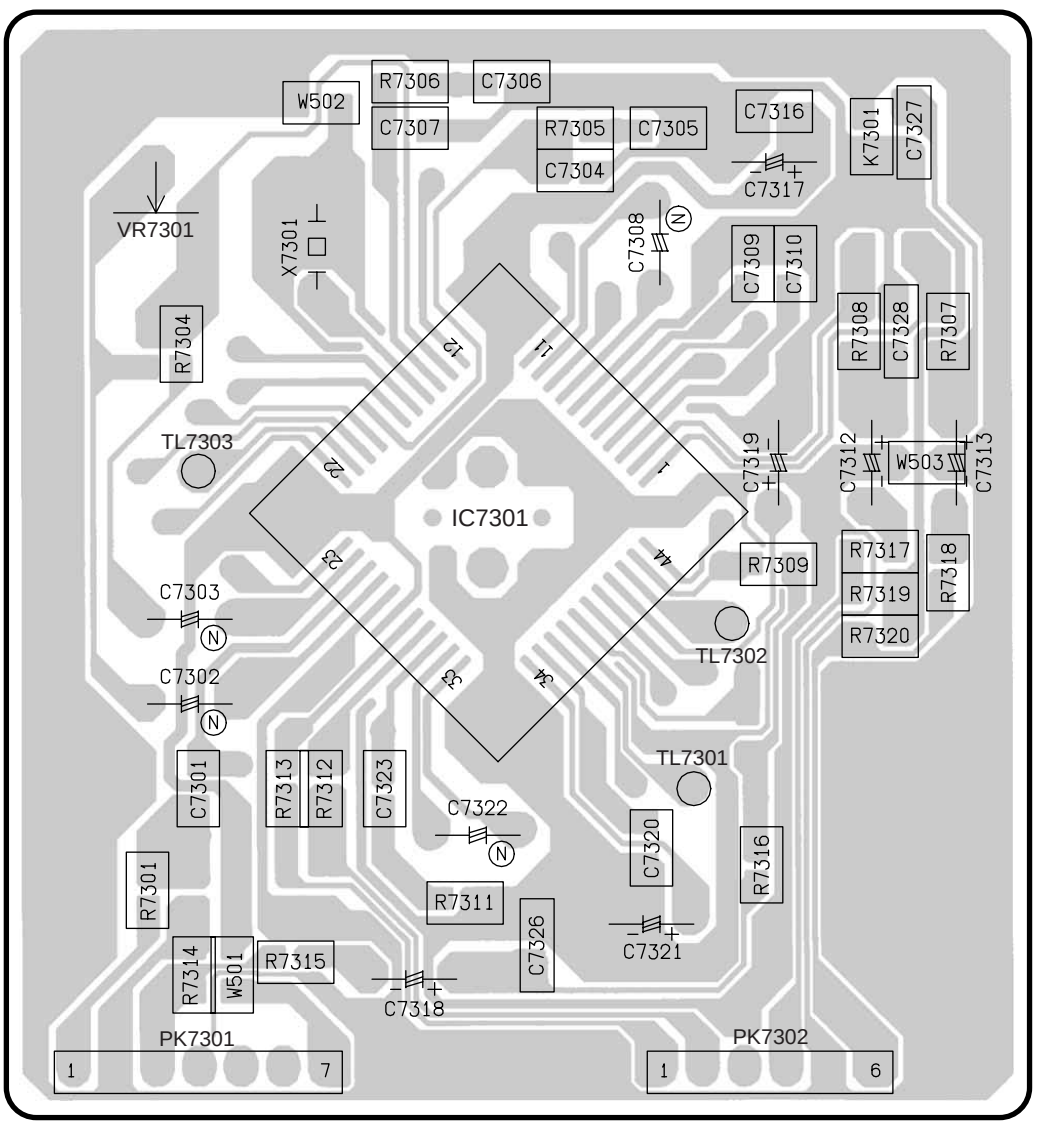
ADDRESS INFORMATION

NV-HS830EG/B/EC/EE
CYLINDER STATOR UNIT

DECODER PACK C.B.A.	
Integrated Circuit	
IC7301	B-2
Test Point	
TL7301	A-2
TL7302	B-2
TL7303	B-1
Adjustment	
VR7301	C-1
Connector	
PK7301	A-1
PK7302	A-2

ADDRESS INFORMATION

(VEP07A16A:NV-HS830EG)

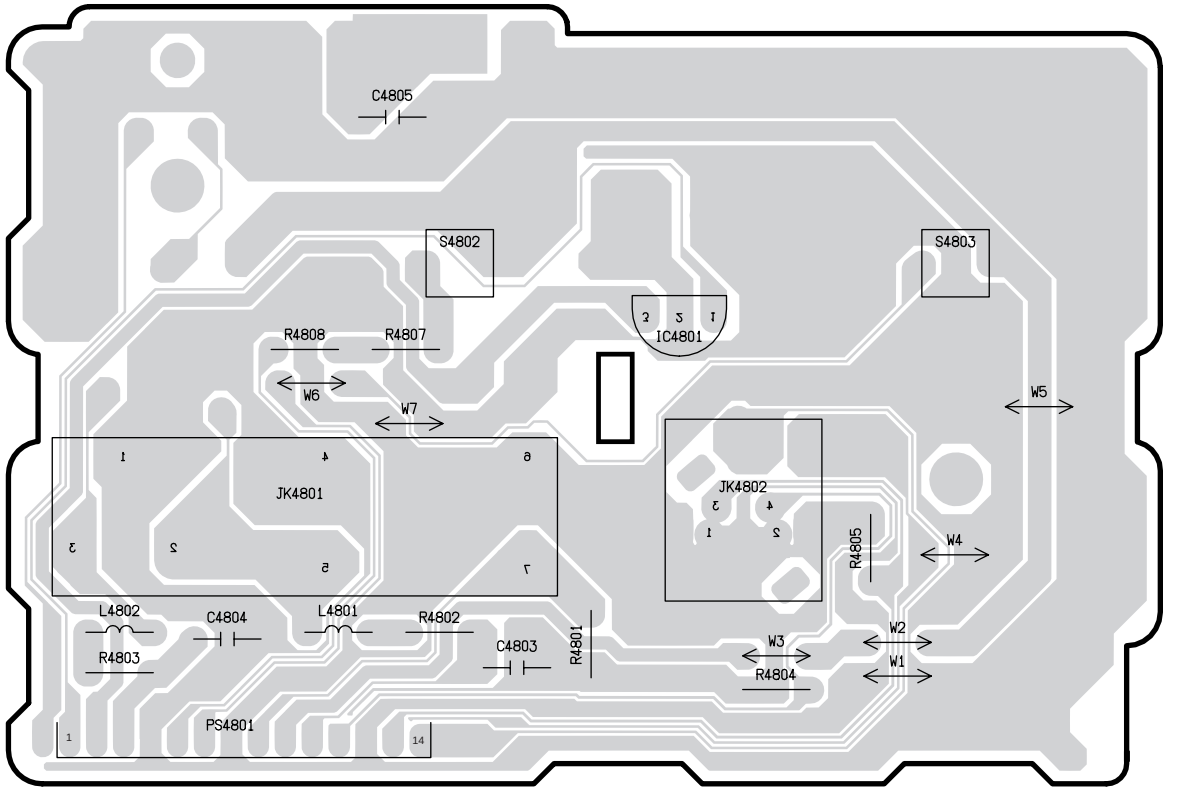


NV-HS830EG
DECODER PACK C.B.A.

AV FRONT C.B.A.	
Integrated Circuit	
IC4801	B-3
Connector	
PS4801	A-1

ADDRESS INFORMATION

(VEP04800B)

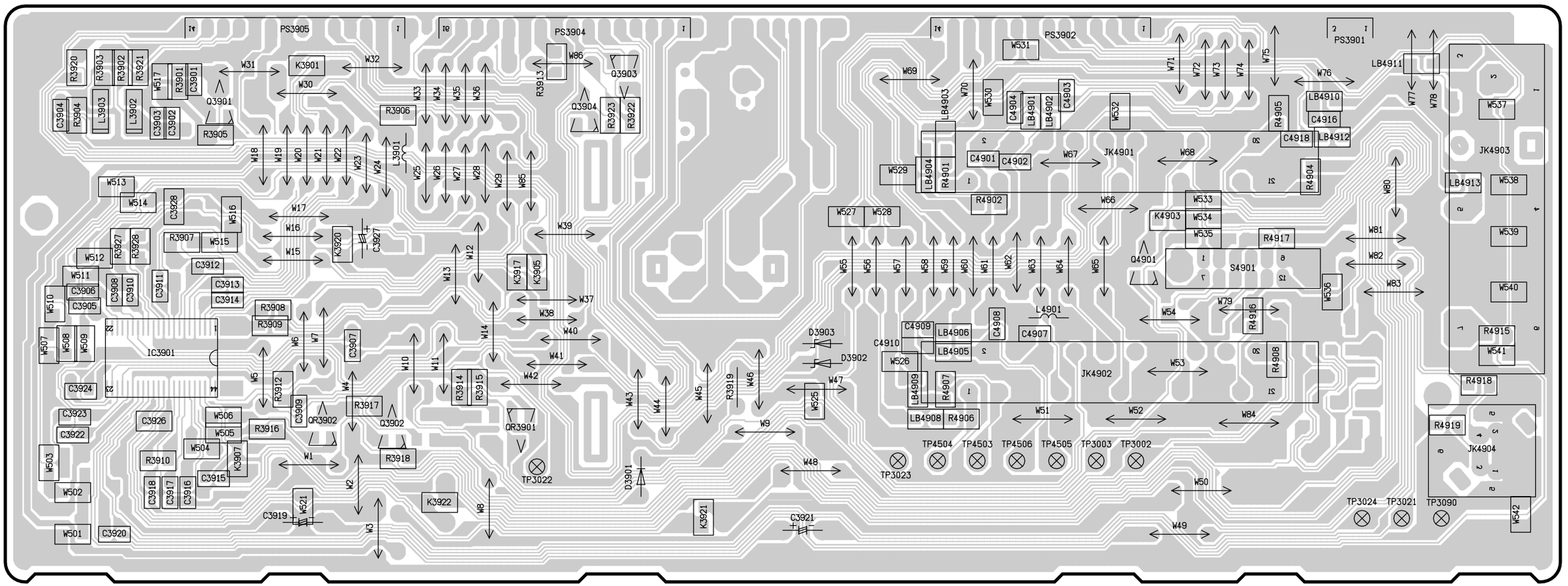


NV-HS830EG/B/EC/EE
AV FRONT C.B.A.

INPUT/OUTPUT PACK C.B.A.			
Transistor		**Test Point**	
Q3901	D-2	TP3002	B-7
Q3902	B-3	TP3003	B-7
Q3903	D-4	TP3021	A-9
Q3904	D-4	TP3022	B-4
Q4901	C-7	TP3023	B-6
Transistor & Resistor		TP3024	A-8
QR3901	B-4	TP3090	A-9
QR3902	B-3	TP4503	B-6
Integrated Circuit		TP4504	B-6
IC3901	B-2	TP4505	B-7
		TP4506	B-6
		Connector	
		PS3901	D-8
		PS3902	D-7
		PS3904	D-4
		PS3905	D-2

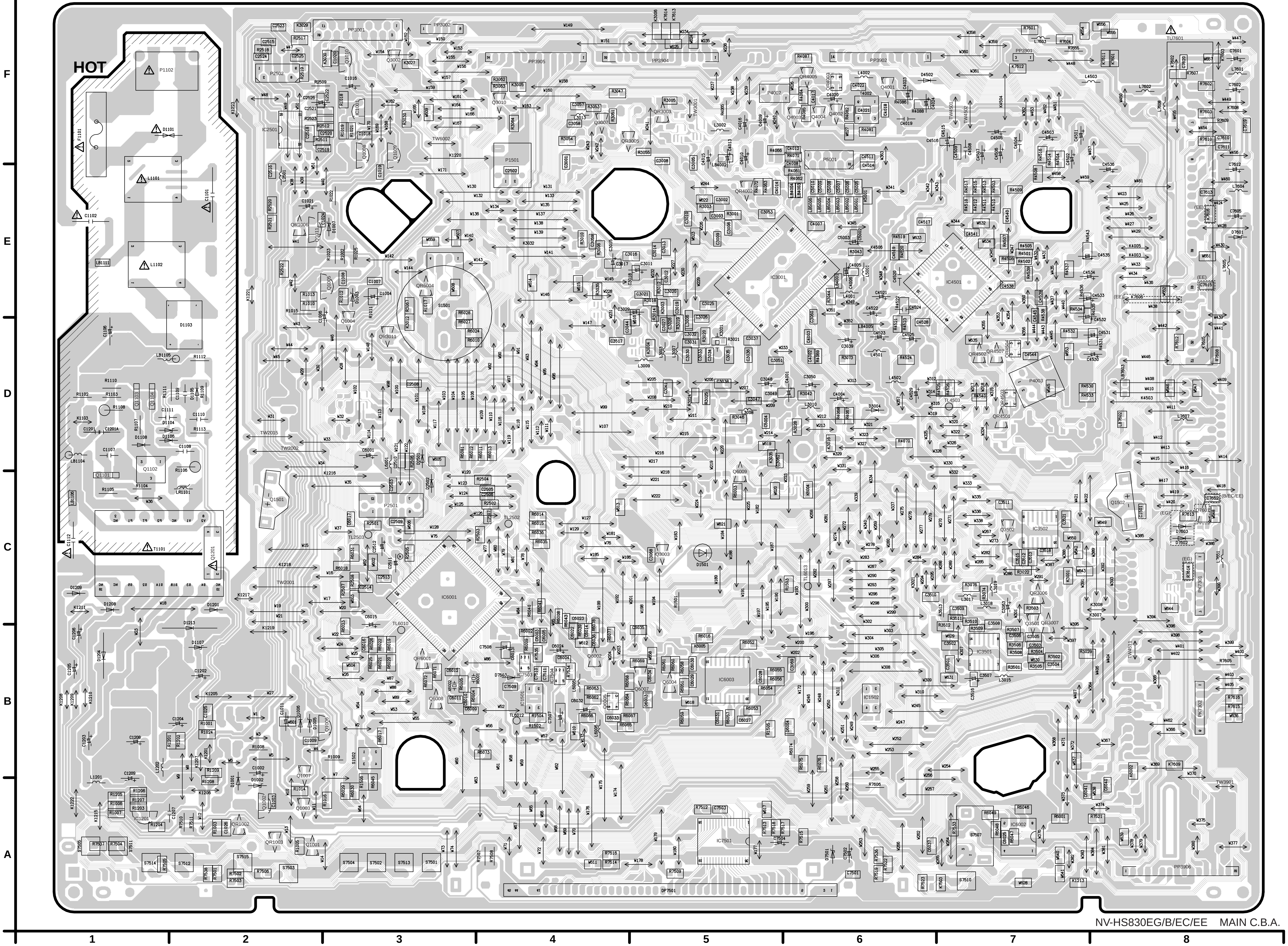
ADDRESS INFORMATION

(VEP03G10A)



NV-HS830EG/B/EC/EE
INPUT/OUTPUT PACK C.B.A.

(VEP06E67A:NV-HS830EG)(VEP06E67B:NV-HS830B)(VEP06E67C:NV-HS830EC)(VEP06E67E:NV-HS830EE)



NV-HS830EG/B/EC/EE MAIN C.B.A.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

CAUTION

THE STRIPED FRAME INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

MAIN C.B.A.

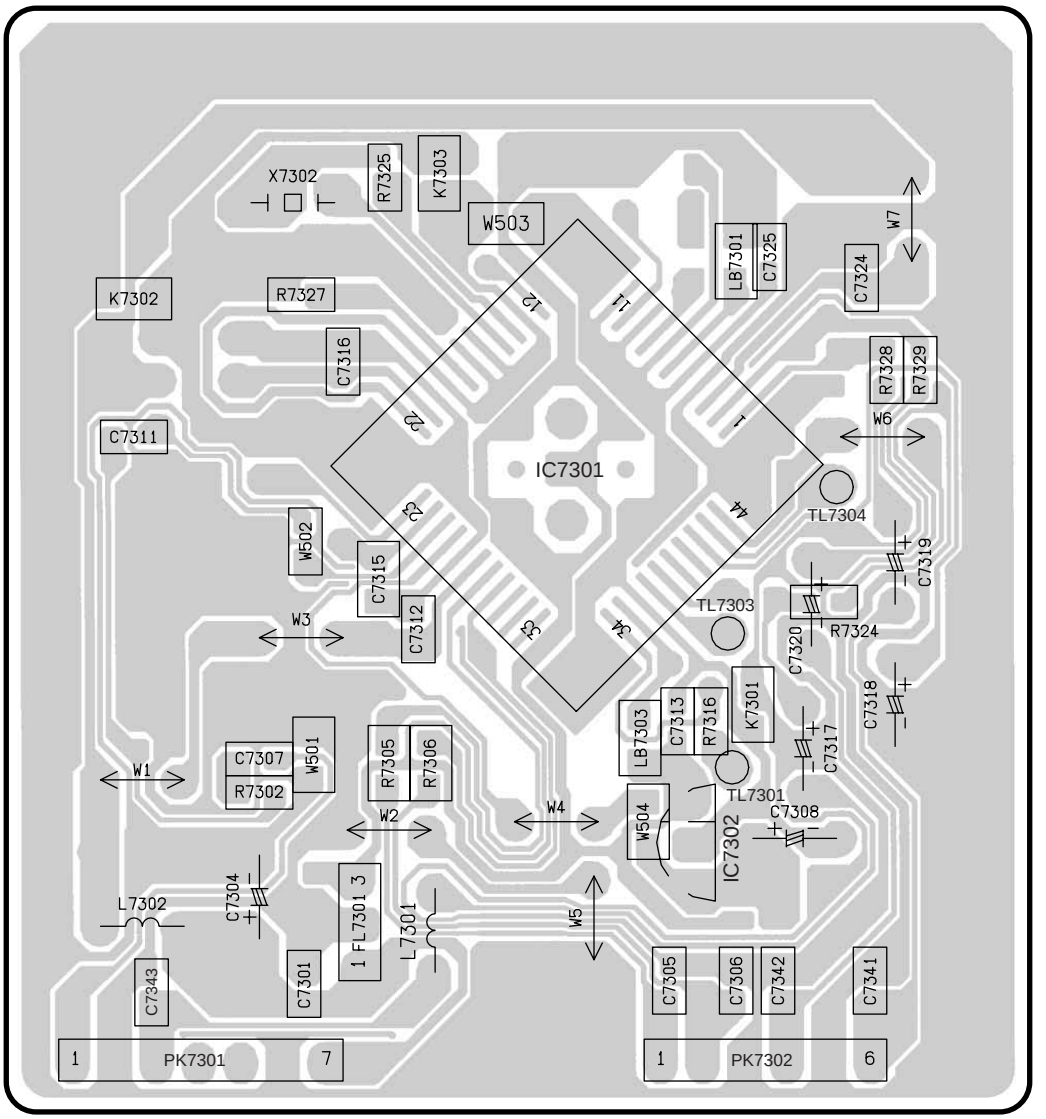
Transistor		**Transistor & Resistor**		**Test Point**	
Q1001	A-2	QR1002	A-2	TL2502	C-4
Q1002	A-2	QR1003	A-2	TL2503	C-3
Q1003	A-2	QR1006	E-2	TL4503	D-7
Q1004	D-3	QR3003	F-5	TL6010	B-3
Q1005	E-3	QR3005	F-4	TL6012	B-4
Q1006	B-3	QR3006	C-7	TL6013	C-6
Q1007	B-2	QR3007	C-7	TW2001	C-2
Q1008	F-3	QR3011	D-3	TW2002	D-2
Q1009	F-3	QR4002	E-5	TW2015	D-2
Q1010	F-3	QR4003	F-6	TW3001	F-5
Q1011	E-2	QR4005	F-6	TW3003	F-4
Q1101	C-1	QR4501	D-7	TW3901	A-8
Q1102	D-1	QR4502	D-7	TW4501	F-7
Q1103	D-1	QR4503	D-7	TW4502	F-7
Q1104	D-1	QR4504	D-7	TW4511	B-8
Q1201	C-2	QR4507	D-7	TW6002	F-3
Q1501	C-2	QR6001	B-3	**Connector**	
Q1502	C-8	QR6004	E-3	P1102	F-1
Q3002	F-3	**Integrated Circuit**		P1501	F-4
Q3007	F-4	IC1001	F-3	P2501	C-3
Q3010	F-4	IC1201	A-1	P2502	F-2
Q3501	C-7	IC1501	B-4	P3003	C-8
Q3502	C-7	IC1502	B-6	P4002	F-5
Q4001	F-6	IC2501	F-2	P4003	D-7
Q4002	F-6	IC3001	E-5	P5001	F-6
Q4003	F-6	IC3501	B-7	PK7301	C-8
Q4004	F-6	IC3502	C-7	PK7302	B-8
Q6002	B-4	IC4501	E-7	PP3001	F-3
Q6004	B-5	IC6001	C-3	PP3002	F-3
Q6005	B-4	IC6002	A-7	PP3901	F-7
Q6007	B-5	IC6003	B-5	PP3902	F-6
Q6008	B-3	IC7501	A-5	PP3904	F-5
Q6009	C-5	IC7503	B-4	PP3905	F-4
Q7601	C-8	IC7504	B-4	PP3906	A-8
				DU7601	D-8
				TU7601	F-8

ADDRESS INFORMATION

NICAM DECODER PACK C.B.A.	
Integrated Circuit	
IC7301	B-2
IC7302	A-2
Test Point	
TL7301	A-2
TL7303	B-2
TL7304	B-2
Integrated Circuit	
PK7301	A-1
PK7302	A-2

ADDRESS INFORMATION

(VEP07A18X:NV-HS830B)
(VEP07A18R:NV-HS830EC)
(VEP07A18T:NV-HS830EE)

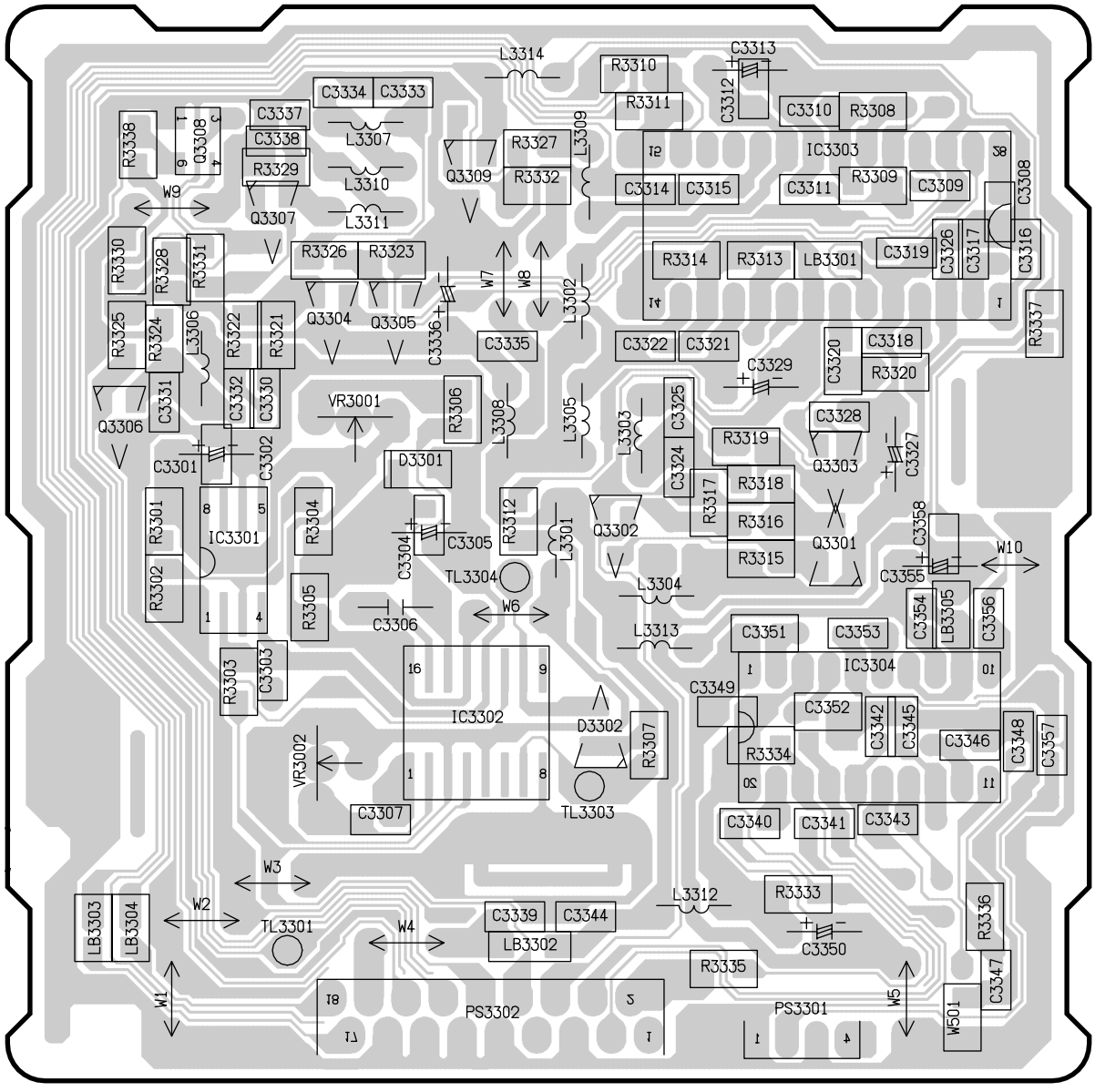


NV-HS830B/EC/EE
NICAM DECODER PACK C.B.A.

Y/C SEPARATION PACK C.B.A.			
Transistor		**Test Point**	
Q3301	C-4	TL3301	A-2
Q3302	C-3	TL3303	B-3
Q3303	C-4	TL3304	C-3
Q3304	D-2	**Adjustment**	
Q3305	D-2	VR3001	C-2
Q3306	C-1	VR3002	B-2
Q3307	D-2	**Connector**	
Q3308	D-2	PS3301	A-4
Q3309	D-3	PS3302	A-3
Integrated Circuit			
IC3301	C-2		
IC3302	B-3		
IC3303	D-4		
IC3304	B-4		

ADDRESS INFORMATION

(VEP03G12A)

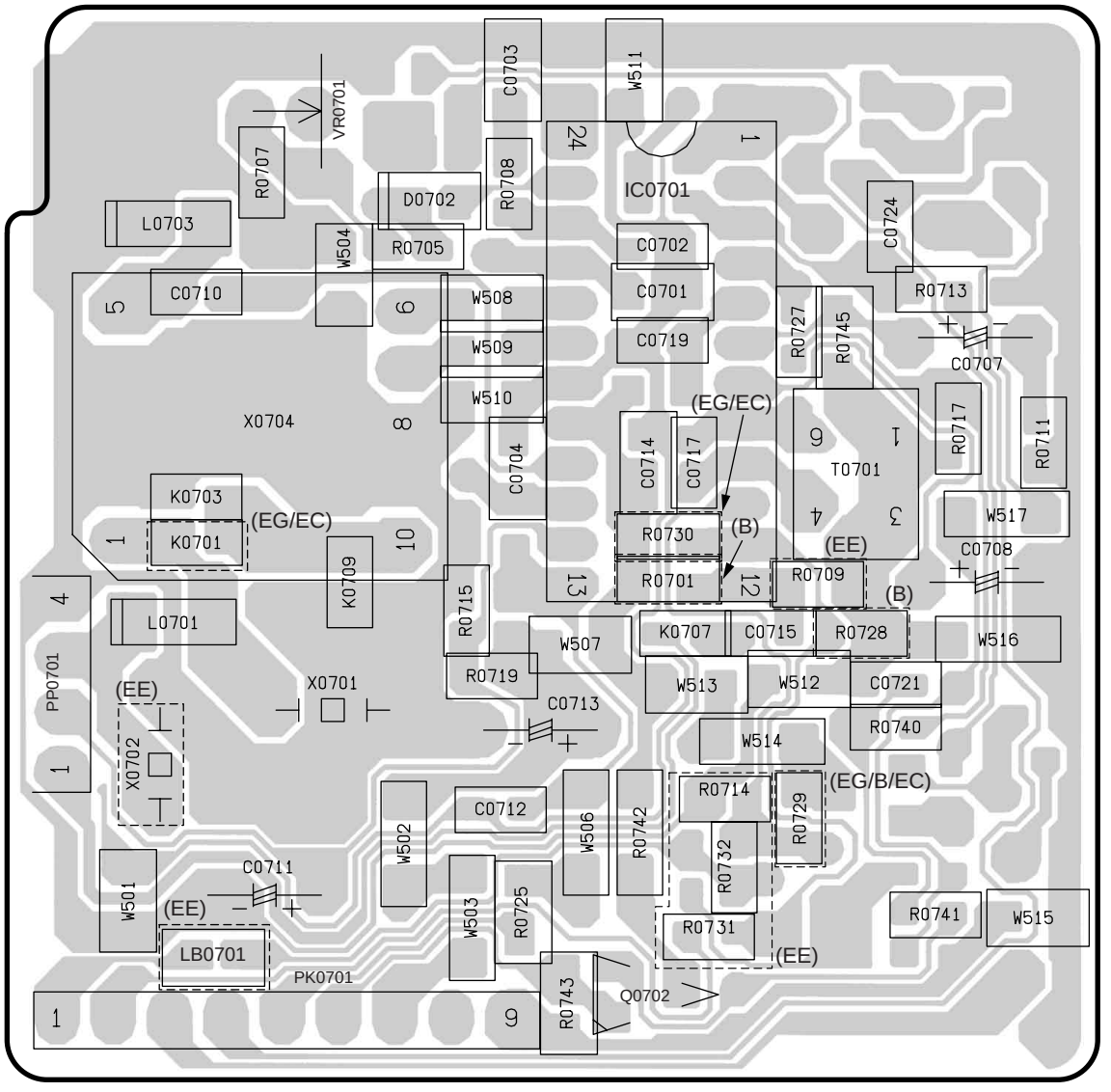


NV-HS830EG/B/EC/EE
Y/C SEPARATION PACK C.B.A.

TV DEMODULATOR PACK C.B.A.	
Transistor	
Q0702	A-3
Integrated Circuit	
IC0701	C-2
Adjustment	
T0701	B-3
VR0701	D-2
Connector	
PK0701	A-2
PP0701	B-1

ADDRESS INFORMATION

(VEP07A23S:NV-HS830EG/EC)
(VEP07A23T:NV-HS830B)
(VEP07A23U:NV-HS830EE)



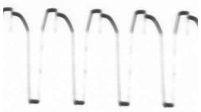
NV-FJ830EG/B/EC/EE
TV DEMODURATOR PACK C.B.A.

T1101-3 STOP
3.8Vp-p (2msec.div.)

T1101-5 STOP
500Vp-p (5usec.div.)

T1101-6 STOP
540Vp-p (5usec.div.)

T1101-7 STOP
30Vp-p (5usec.div.)

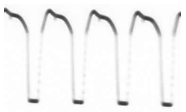


T1101-10 STOP
180Vp-p (5usec.div.)

T1101-11 STOP
22Vp-p (5usec.div.)

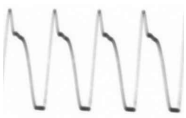
T1101-13 STOP
50Vp-p (5usec.div.)

T1101-16 STOP
94Vp-p (5usec.div.)



T1101-17 STOP
23Vp-p (5usec.div.)

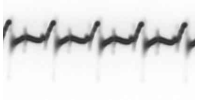
Q1101-S STOP
500Vp-p (5usec.div.)



Q1101-G STOP
170Vp-p (5usec.div.)

Q1101-D STOP
540Vp-p (5usec.div.)

Q1102-1 STOP
15Vp-p (5usec.div.)

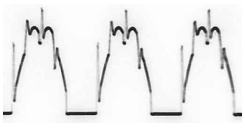


Q1102-2 STOP
1.0Vp-p (5usec.div.)

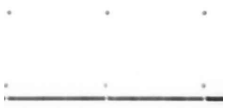
Q1102-3 STOP
500Vp-p (5usec.div.)

Q1201-1 STOP
0.5Vp-p (5usec.div.)

Q1201-2 STOP
0.5Vp-p (5usec.div.)



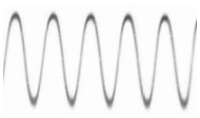
IC2501-1,18,20 PLAY
8.6Vp-p (2msec.div.)



IC6001-20 STILL
5.0Vp-p (5msec.div.)

IC6001-24 REC
5.0Vp-p (10msec.div.)

IC6001-34 REC
4.0Vp-p (5msec.div.)

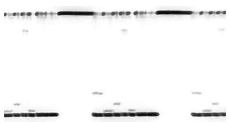


IC6001-35 REC
2.4Vp-p (20usec.div.)

IC6001-61 REC
2.0Vp-p (20usec.div.)

IC6001-93,94 FF/REW
5.0Vp-p (1msec.div.)

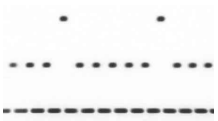
IC6001-97 REC
5.0Vp-p (5msec.div.)



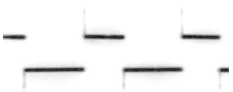
IC6001-98 REC
5.0Vp-p (5msec.div.)

IC6001-99 REC
5.0Vp-p (10msec.div.)

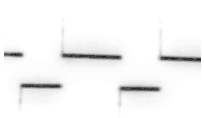
IC6001-100 REC
5.0Vp-p (10msec.div.)



IC6001-107 REC
5.0Vp-p (10msec.div.)

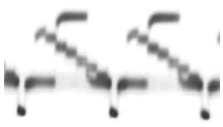


IC6001-111 REC
6.4Vp-p (10msec.div.)



IC6001-112 REC
6.4Vp-p (10msec.div.)

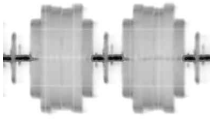
IC6001-114 PLAY
4.0Vp-p (10msec.div.)



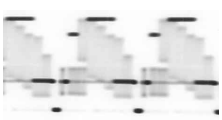
IC3001-11 REC
0.4Vp-p (20usec.div.)

IC3001-11 PLAY
0.4Vp-p (20usec.div.)

IC3001-13 REC/PLAY
0.4Vp-p (20usec.div.)

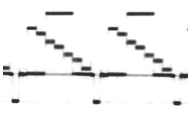


IC3001-20 REC
0.8Vp-p (20usec.div.)

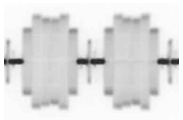


IC3001-22 REC
1.0Vp-p (20usec.div.)

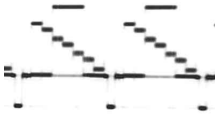
IC3001-45,46 REC/PLAY
5.0Vp-p (5msec.div.)



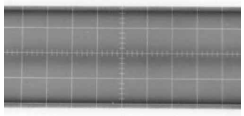
IC3001-57 REC/PLAY
2.0Vp-p (20usec.div.)



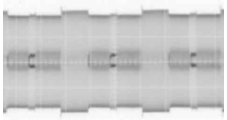
IC3001-59 REC/PLAY
1.5Vp-p (20usec.div.)



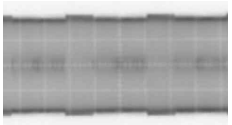
IC3001-68 REC
1.2Vp-p (20usec.div.)



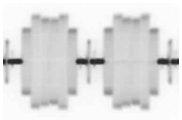
IC3001-84 PLAY
2.8Vp-p (20usec.div.)



IC3001-85 REC
3.0Vp-p (20usec.div.)



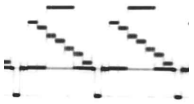
IC3001-86 PLAY
2.8Vp-p (20usec.div.)



PP3001-2 PLAY
1.2Vp-p (20usec.div.)

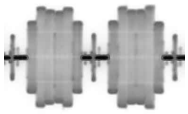
PP3001-4 REC
2.0Vp-p (5msec.div.)

PP3001-6 REC
0.6Vp-p (20usec.div.)

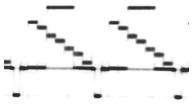


PP3001-6 PLAY
0.6Vp-p (20usec.div.)

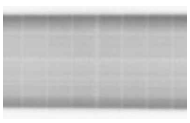
PP3001-8 REC/PLAY
5.0Vp-p (20usec.div.)



PP3001-10 REC
0.8Vp-p (20usec.div.)



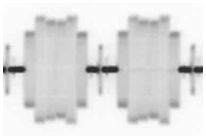
PP3001-12 REC
1.2Vp-p (20usec.div.)



PP3001-14 REC/PLAY
0.5Vp-p (20usec.div.)

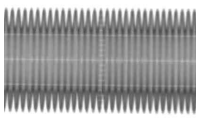
PP3001-17 REC/PLAY
5.0Vp-p (20usec.div.)

PP3001-18 REC/PLAY
5.0Vp-p (20usec.div.)



PP3002-2 PLAY
0.6Vp-p (20usec.div.)

Q4002-C REC
8.4Vp-p (5usec.div.)



IC4501-21,22,24
REC 1.2Vp-p (10usec.div.)

IC4501-32 REC/PLAY
0.2Vp-p (0.5msec.div.)

IC4501-53,57 REC/PLAY
1.2Vp-p (0.5msec.div.)

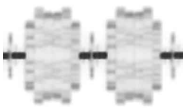
IC3303-7 REC
1.0Vp-p (20usec.div.)

IC3303-10 REC/PLAY
5.0Vp-p (20usec.div.)

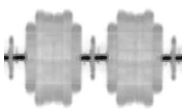
IC3303-15 REC/PLAY
5.0Vp-p (5msec.div.)

IC3303-16 REC/PLAY
5.0Vp-p (5msec.div.)

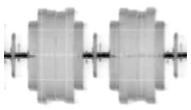
IC3303-25 REC
2.0Vp-p (20usec.div.)



IC3303-27 REC
1.2Vp-p (20usec.div.)



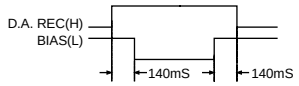
IC3304-5 PLAY
0.5Vp-p (20usec.div.)



IC3304-19 REC/PLAY
0.6Vp-p (20usec.div.)

No.	NAME	I/O	Description	P-OFF	P-SAVE	P-FAIL	Reset
1	CURRENT_LIMIT	O	Current limit terminal for Capstan driver.	Low	Low	Low	Low
2	F ADJUST	O	Analogue voltage output for Head frequency response adjustment.	Low	Low	Low	Low
3	SCAS_IN(L)	I	Detection Terminal for VHS tape or S-VHS tape.	In	In	In	In
4	ADUB(H)	O	Switching terminal of BIAS OSC noise reduction filter in ADUB (1). The VCR mode is ADUB/ADUB-PS(Including Assemble/Synchro./AV Insert): High output (2). Other than above: Hi-Z output	Hi-Z	Hi-Z	Hi-Z	Hi-Z
5	TRACKING_ENVE	I	Video envelope input terminal for auto tracking and CVC.	In	In	In	In
6	SLP(H)	O	Tape speed output terminal.(EE/VV) *When the NTSC10/PAL9H is set up as the Servo data.: High (H) output. *Other than above speed : Low (L) output.	Low	Low	Low	Low
7	LP(H)	O	Tape speed output terminal.(EE/VV) *When the NTSC4H/6H or PAL6H/9H is set up as the Servo data : High (H) Output. *Other than above speed : Low (L) output. *As for 2 head model, the output signal is fixed to low, no matter if it has LP mode or not.	Low	Low	Low	Low
8	CPB	I	PB(H) input terminal from AV2. *From 3.85v to 5.0v : High *From 1.82v to 2.84v :Middle *From 0v to 0.81v :Low	In	In	In	In
9	AFC S	I	S curve input terminal from the Tuner.	In	In	In	In
10	A-MUTE(H)	O	Audio mute signal exclusive for the RF converter.	High	High	Low	High
11	AV1_8IN	I	PB(H) input terminal from AV1. *From 3.85v to 5.0v : High *From 1.82v to 2.84v :Middle *From 0v to 0.81v :Low	In	In	In	In
12	N/S/T2/T3	I	Normal/Service/Test2/Test3 select *Over than 4.0v :NORMAL mode *From 2.5v to 4.0v :SERVICE mode *From 1.0v to 2.5v :TEST2 mode *From 0v to 1.0v :TEST3 mode	In	In	In	In
13	S-PHOTO	I	Tape end sensor input from supply side. *More than 2.6V: Black / Less than 2.4V : white)	In	In	In	In
14	T-PHOTO	I	Tape beginning sensor input from take up side *More than 2.6V: Black / Less than 2.4V : white)	In	In	In	In
15	ABS_NORM(H)	I	Input terminal for FM audio envelope level detection.	In	In	In	In
16	S-VHS/MES/NOR	I	Input terminal for Playback detection result. (S-VHS/MESECAM/NORMAL)	In	In	In	In
17	S-VHS(H)	O	Output terminal for S-VHS mode.	Low	Low	Low	Low
18	SECAM_ID_IN(L)	I	Input terminal for SECAM detection result.	In	In	In	In
19	D.FM.REC(H)	O	Control signal for timing of FM audio recording current.	Low	Low	Low	Low
20	ART.V/H/N	O	Output terminal of the Artificial V synchronization signal.	Low	Low	Low	Low
21	AV1_OUT_SW(L)	I	Input terminal of composite/component switching for AV1 output. *It is automatically switched composite/component when this result is sent to TV using P50.	In	In	In	In
22	AV3_S_IN(L)	I	Input terminal of AV3_S-VHS input condition. *AV3_S-VHS IN : "Low" (L).	In	In	In	In
23	ET_REC(H)	O	REC Mode output terminal of the S-VHS-ET.	Low	Low	Low	Low
24	VIDEO.H.SW	O	Output terminal for video HEAD switching signal.	Low	Low	Low	Low
25	A.H.SW	O	Output terminal for FM audio HEAD switching signal.	Low	Low	Low	Low
26	A.DEF(H)	O	Output terminal for decoder IC Reset.	Low	Low	Low	Low
27	TBC MODE0	O	TBC MODE0 output.	Low	Low	Low	Low
28	AVPB-H(L)	O	Output terminal of PB (H/M) for AV2. (If the unit has only one scart terminal, this is for AV1.) *To be outputted signal from 21pin (8) has been changed to H/M/L signal in accordance with the following terminal's settings.	High	High	Low	High
29	AVPB-M(H)	O		Low	Low	Low	Low
30	GND(D)	I	GND	---	---	---	---
31	20MHz.IN	I	Main oscillator input	---	STOP	STOP	---
32	20MHz.OUT	O	Main oscillator output	---	STOP	STOP	---
33	+5V(D)	I	VDD	---	---	---	---
34	32KHz IN	I	Sub oscillator input	---	---	---	---
35	32KHz OUT	O	Sub oscillator output	---	---	---	---
36	VCONT	I	Open	---	---	---	---

pin8 \ Setting	AVPBH-(L)	AVPBM-(H)
High	L	Hi-Z
Middle	H	Hi-Z
Low	H	L

No.	NAME	I/O	Description	P-OFF	P-SAVE	P-FAIL	Reset
37	V EE(L)	O	Output terminal of EE and VV switching.	Low	Low	Low	Low
38	ILLUMI LED ON(H)	O	Front Illumination LED ON/OFF control terminal. * The output is decided according to ON/OFF setting of OSD menu and power ON/OFF condition of VCR. * During OSD menu is OFF: Low output * During OSD menu is ON: VCR power is ON: High output	Low	Low	Low	Low
39	D.A.REC(H)	O	Timing control terminal for linear audio recording current.	Low	Low	Low	Low
40	BIAS(L)	O	Bias oscillation control terminal for linear audio.	High	Hi-Z	Hi-Z	High
41	FM.MUTE(H)	O	Output terminal for audio mute control.	High	High	Low	High
42	FULL ERASE(L)	O	Full Erase Head oscillation control terminal.	Low	Low	Low	Low
43	POWER_KEY	I	Input terminal for power on/off command through power button. (The power on/off is switched by detecting falling edge of H to L.)	In	In	In	In
44	POS.SW3	I	Input terminal for mechanism position.  	In	In	In	In
45	POS.SW2	I		In	In	In	In
46	POS.SW1	I		In	In	In	In
47	POWER OFF(H)	O	Control signal for power circuit. *High is existed when turning off the power supply for concerned circuit. *Low is existed while power is supplied to mechanism and/or concerned circuit, although it seems to be power off.	High	High	Low	High
48	FIP(L)	O	Control terminal for FIP on/off. *Low is existed when FIP OFF is selected on the Menu screen and the VCR turns off.	Not fix	High	Low	Low
49	P50 IN	I	Interrupt serial input terminal for project 50.	In	In	In	In
50	LC.OSC IN	I	Oscillation output terminal for OSD dot clock.	---	---	---	---
51	LC.OSC OUT	O	Oscillation input terminal for OSD dot clock.	---	---	---	---
52	RESET(L)	I	Reset input terminal of microprocessor.	In	In	In	In
53	4FC.LPF	I	4FSC input terminal.	---	---	---	---
54	OSD.FSC IN	I	FSC input tewrminal.	---	---	---	---
55	5V(OSD)	I	Power supply terminal for OSD circuit.	---	---	---	---
56	CVIN	I	Input terminal for composite video signal.	---	---	---	---
57	GND(OSD)	I	GND terminal for composite video signal.	---	---	---	---
58	LECHA	I	Input terminal for white level of composite video signal.	---	---	---	---
59	20M.START(H)	I	Control terminal for high/low-speed mode.	---	---	---	---
60	MD0	I	Mode switching terminal for Overwriting the Flash memory.	---	---	---	---
61	CVOUT	O	Output terminal for CG video.	---	---	---	---
62	HLF	O	LPF connecting terminal of the Slicer for OSD dot clock.	---	---	---	---
63	VHOLD	O	Capacitor connecting terminal of the Slicer for OSD dot clock.	---	---	---	---
64	CVIN(EDS)	I	Input terminal of the composite video signal for the Slicer.	In	In	In	In
65	SHORT_DN	I	Emergency detection terminal of oscillating circuit for recording. *The power is turned off Compulsory when this input becomes high while BIAS(L) existing (The self test indication displays : F08). *The power is turned off Compulsory when this input becomes Low while BIAS(H) existing (The self test indication displays : F07).	In	In	In	In
66	UNLOADING(H)	O	Control terminal for Loading motor.(Forward) *High is existed when the loading motor rotates reverse direction and/or breaking.	Low	Low	Low	Low
67	LOADING(H)	O	Control terminal for Loading motor.(Reverse) *High is existed when the loading motor rotates forward direction and/or breaking.	Low	Low	Low	Low
68	PAL-I/BG/DK(SYS4)	O	Output terminal for broad cast system to control the video circuit.	Not fix	Low	Low	Low
69	SECAM/PAL(SYS2)	O	Output terminal for the unit recognition result of broad cast system.	Low	Low	Low	Low
70	ADD-V	I	V-sync. Input terminal.	In	In	In	In
71	OSD PULSE	O	Terminal for abstracting the BOX from Video signal in superimpose mode.	Low	Low	Low	Low
72	SLEEP(L)	O	Output terminal of control signal for super power save mode, to be supplied to power circuit. *Low is existed when the super power save ON is selected and the unit is in the P-OFF	High	Low	Low	High
73	PROG ON	O	I/O control to switch IIC bus for LW-programmer. H:IIC bus is connected to AV2. L:IIC bus is not connected to AV2.	Low	Low	Low	Low
74	NAVI(H)	O	NAVI data writing control signal in Vertical Branking Period.	Low	Low	Low	Low
75	NAVI DATA	O	NAVI data writing control signal in Vertical Branking Period.	Low	Low	Low	Low
76	P FAIL	I	Interrupt input terminal for power fail detection.	In	In	In	In
77	IR	I	Interrupt input terminal receiving from IR-Remote Controller.	In	In	In	In
78	P50 OUT	O	Data output terminal for Project 50 (Q-Link, etc.)	Not fix	Low	Low	Low
79	CAP.ET	O	Output terminal for Capstan Torque command.	0V	0V	Low	0V
80	CYL.ET	O	Output terminal for Cylinder Torque command.	4.213V	4.213V	Low	4.213V
81	B/W(H)	O	B/W mode output terminal.	Low	Low	Low	Low
82	HALF_WAVE(H)	O	Control terminal for switching capstan motor speed full-wave (First) and Half-wave mode.	In	In	In	In
83	CAP.R/F	O	Capstan motor rotation direction control terminal.	Low	Low	Low	Low
84	125Hz	O	Output terminal of the reference 125Hz clock using for clock adjustment.	Not fix	Low	Low	Low
85	FLD/S-BUS CS	O	FLD/Slicer bus chip select terminal.	Not fix	Low	Low	Low
86	FLD/S-BUS/T2 CLK	O	FLD / Slicer bus / Test 2 clock terminal.	Not fix	Low	Low	Low
87	FLD/S-BUS/T2 IN	I	FLD/Slicer bus / TEST2 Data output terminal.	Not fix	In	In	In
88	FLD/S-BUS/T2 OUT	O	FLD/Slicer bus / TEST2 Data in terminal	Not fix	Low	Low	Low
89	5P CLK	O	FIP driver / TEST2 Serial Clock terminal (Serial clock signal for FIP driver and factory machine)	Not fix	Low	Low	Low
90	5P DATA IN	I	FIP driver / TEST2 Serial data input terminal (Serial data input signal for FIP driver and factory machine)	Not fix	In	In	In
91	5P DATA OUT	O	FIP driver / TEST2 Serial data output terminal (Serial data output signal for FIP driver and factory machine)	Not fix	Low	Low	Low

No.	NAME	I/O	Description	P-OFF	P-SAVE	P-FAIL	Reset
92	S TAB_ON(L)	I	Input terminal of condition of the erasure prevention tab on the cassette tape. *With tab : "Low" / Without tab : "High".	In	In	In	In
93	T.REEL.PULSE	I	Input terminal for the pulse from Take-up Reel Sensor.	In	In	In	In
94	S.REEL.PULSE	I	Input terminal for the pulse from Supply Reel Sensor.	In	In	In	In
95	DAVN	I	DAVN signal from Slicer	In	In	In	In
96	EEP_WR	O	Write enable for EEPROM H:READ only L:Write	High	High	Low	High
97	MAIN IIC CLK	O	IIC clock for AV1CHIP,FM audio,Tuner,Decoder and RFC	Not fix	Low	Low	Low
98	MAIN IIC DATA	I/O	IIC data for AV1CHIP,FM audio,Tuner,Decoder and RFC	Not fix	Low	Low	Low
99	OSD IIC CLK	O	IIC clock for EEPROM,I/O and slicer	Not fix	Low	Low	Low
100	OSD IIC DATA	O	IIC data for EEPROM,I/O and slicer	Not fix	Low	Low	Low
101	CNR_OFF(H)	O	Control terminal for the Chroma Noise Reduction. *CNR ON : "High" / CNR OFF : "Low".	Low	Low	Low	Low
102	EX.FF/REW(L)	O	Control terminal for the filter of the PB-CTL signal during FF/REW.	Low	Low	Low	Low
103	FG.AMP.OUT	O	Output from internal FG Amplifier	---	---	---	---
104	FG.AMP.IN	I	Input for internal FG Amplifier	---	---	---	---
105	GND(A)	I	GND.	---	---	---	---
106	to GND	I	GND.	---	---	---	---
107	PFG	I	FPG input terminal.	---	---	---	---
108	OREF	O	Output from internal reference voltage (2.5V)	---	---	---	---
109	IREF	I	Input for internal reference voltage	---	---	---	---
110	to GND	I	GND	---	---	---	---
111	CTL.HEAD(-)	I	Input signal from CTL HEAD(+)	---	---	---	---
112	CTL.HEAD(+)	I	Input signal from CTL HEAD(-)	---	---	---	---
113	CTL.AMP.REF	I	Input for internal CTL amplifier reference voltage	---	---	---	---
114	PB.CTL.OUT	O	Output from internal CLT amplifier	---	---	---	---
115	+5V(A)	I	VDD for Analogue signal process.	---	---	---	---
116	+5V(AD)	I	VDD for A/D converter.	---	---	---	---

INPUT CONDITION							VIDEO OUTPUT RESULT							AUDIO OUTPUT RESULT				
POWER	AV2 SELECT	TV/ VTR	EE/ VV	OSD ON(H)	INPUT CH	AV2 PB(H)	AV1 OUT	AV2 OUT	AV1 PB(H)	AV2 PB(H)	RGB SW	VCR IN	VCR OUT	AV1 Out	AV2 Out	RF (C)	AV1 Out Selector	AV2 Out Selector
OFF	---	---	---	---	---	L	AV2 In	AV1 In	L	L	OFF	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
VPS STAND BY or Personal Planner Standby	EXT or TIMER1 or TIMER2	---	---	L	NO.TU	L	AV2 In	AV1 In	L	L	OFF	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	*[M/H]	L	ON	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					C+.TU	L	AV2 In	AV1 In	L	L	OFF	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	*[M/H]	L	ON	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					AV1	L	AV2 In	AV1 In	L	L	OFF	AV1	AV1	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	*[M/H]	L	ON	AV1	AV1	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					AV2	L	AV2 In	AV1 In	L	L	OFF	AV2	AV2	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	*[M/H]	L	ON	AV2	AV2	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					AV3	L	AV2 In	AV1 In	L	L	OFF	AV3	AV3	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	*[M/H]	L	ON	AV3	AV3	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					SAT.NO	L	AV2 In	AV1 In	L	L	OFF	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	*[M/H]	L	ON	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					SAT.C+	L	AV2 In	AV1 In	L	L	OFF	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	*[M/H]	L	ON	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
				H	NO.TU	L	VCR out	AV1 In	H	H	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
						M/H	VCR out	AV1 In	H	H	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
					C+.TU	L	VCR out	AV1 In	H	H	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
						M/H	VCR out	AV1 In	H	H	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
					AV1	L	VCR out	AV1 In	H	H	OFF	AV1	AV1	Mute	Mute	Mute	AV1 In	AV1 In
						M/H	VCR out	AV1 In	H	H	OFF	AV1	AV1	Mute	Mute	Mute	AV1 In	AV1 In
					AV2	L	VCR out	AV1 In	H	H	OFF	AV2	AV2	Mute	Mute	Mute	AV2 In	AV1 In
						M/H	VCR out	AV1 In	H	H	OFF	AV2	AV2	Mute	Mute	Mute	AV2 In	AV1 In
					AV3	L	VCR out	AV1 In	H	H	OFF	AV3	AV3	Mute	Mute	Mute	AV3 In	AV1 In
						M/H	VCR out	AV1 In	H	H	OFF	AV3	AV3	Mute	Mute	Mute	AV3 In	AV1 In
					SAT.NO	L	VCR out	AV1 In	H	H	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In
						M/H	VCR out	AV1 In	H	H	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In
					SAT.C+	L	VCR out	AV1 In	H	H	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In
						M/H	VCR out	AV1 In	H	H	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In
	DECODER	---	---	L	NO.TU	L	AV2 In	AV1 In	L	L	OFF	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					C+.TU	L	AV2 In	AV1 In	L	L	OFF	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					AV1	L	AV2 In	AV1 In	L	L	OFF	AV1	AV1	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	AV2	AV2	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					AV2	L	AV2 In	AV1 In	L	L	OFF	AV2	AV2	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	AV2	AV2	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					AV3	L	AV2 In	AV1 In	L	L	OFF	AV3	AV3	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	AV3	AV3	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					SAT.NO	L	AV2 In	AV1 In	L	L	OFF	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					SAT.C+	L	AV2 In	AV1 In	L	L	OFF	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
				H	NO.TU	L	VCR out	AV1 In	H	L	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
					C+.TU	L	VCR out	AV1 In	H	L	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
					AV1	L	VCR out	AV1 In	H	L	OFF	AV1	AV1	Mute	Mute	Mute	AV1 In	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	AV2	AV2	Mute	Mute	Mute	AV2 In	AV1 In
					AV2	L	VCR out	AV1 In	H	L	OFF	AV2	AV2	Mute	Mute	Mute	AV2 In	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	AV2	AV2	Mute	Mute	Mute	AV2 In	AV1 In
					AV3	L	VCR out	AV1 In	H	L	OFF	AV3	AV3	Mute	Mute	Mute	AV3 In	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	AV3	AV3	Mute	Mute	Mute	AV3 In	AV1 In
					SAT.NO	L	VCR out	AV1 In	H	L	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In
					SAT.C+	L	VCR out	AV1 In	H	L	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In

INPUT CONDITION							VIDEO OUTPUT RESULT							AUDIO OUTPUT RESULT				
POWER	AV2 SELECT	TV/ VTR	EE/ VV	OSD ON(H)	INPUT CH	AV2 PB(H)	AV1 OUT	AV2 OUT	AV1 PB(H)	AV2 PB(H)	RGB SW	VCR IN	VCR OUT	AV1 Out	AV2 Out	RF (C)	AV1 Out Selector	AV2 Out Selector
P.ON	EXT	TV	EE	L	NO.TU	---	VCR out	VCR out	L	L	OFF	TUN	TUN	TUN	TUN	TUN	TUN	INSEL
					C+.TU	---	VCR out	VCR out	L	L	OFF	TUN	TUN	TUN	TUN	TUN	TUN	INSEL
	or				AV1	---	VCR out	VCR out	L	L	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	INSEL
					AV2	---	VCR out	VCR out	L	L	ON	AV2	AV2	AV2 In	AV2 In	AV2 In	AV2 In	INSEL
	TIMER1				AV3	---	VCR out	VCR out	L	L	OFF	AV3	AV3	AV3 In	AV3 In	AV3 In	AV3 In	INSEL
					SAT.NO	---	VCR out	VCR out	L	L	OFF	SAT	SAT	SAT	SAT	SAT	SAT	INSEL
	or				SAT.C+	---	VCR out	VCR out	L	L	OFF	SAT	SAT	SAT	SAT	SAT	SAT	INSEL
				H	NO.TU	---	VCR out	VCR out	H	H	OFF	TUN	TUN	TUN	TUN	TUN	TUN	INSEL
	TIMER2				C+.TU	---	VCR out	VCR out	H	H	OFF	TUN	TUN	TUN	TUN	TUN	TUN	INSEL
					AV1	---	VCR out	VCR out	H	H	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	INSEL
					AV2	---	VCR out	VCR out	H	H	OFF	AV2	AV2	AV2 In	AV2 In	AV2 In	AV2 In	INSEL
					AV3	---	VCR out	VCR out	H	H	OFF	AV3	AV3	AV3 In	AV3 In	AV3 In	AV3 In	INSEL
					SAT.NO	---	VCR out	VCR out	H	H	OFF	SAT	SAT	SAT	SAT	SAT	SAT	INSEL
					SAT.C+	---	VCR out	VCR out	H	H	OFF	SAT	SAT	SAT	SAT	SAT	SAT	INSEL
		VTR	EE	L	NO.TU	---	VCR out	VCR out	H	H	OFF	TUN	TUN	TUN	TUN	TUN	TUN	INSEL
					C+.TU	---	VCR out	VCR out	H	H	OFF	TUN	TUN	TUN	TUN	TUN	TUN	INSEL
					AV1	---	VCR out	VCR out	H	H	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	INSEL
					AV2	L	VCR out	VCR out	H	H	ON	AV2	AV2	AV2 In	AV2 In	AV2 In	AV2 In	INSEL
						M/H	VCR out	VCR out	M/H	M/H	ON	AV2	AV2	AV2 In	AV2 In	AV2 In	AV2 In	INSEL
					AV3	---	VCR out	VCR out	H	H	OFF	AV3	AV3	AV3 In	AV3 In	AV3 In	AV3 In	INSEL
					SAT.NO	---	VCR out	VCR out	H	H	OFF	SAT	SAT	SAT	SAT	SAT	SAT	INSEL
					SAT.C+	---	VCR out	VCR out	H	H	OFF	SAT	SAT	SAT	SAT	SAT	SAT	INSEL
				H	NO.TU	---	VCR out	VCR out	H	H	OFF	TUN	TUN	TUN	TUN	TUN	TUN	INSEL
					C+.TU	---	VCR out	VCR out	H	H	OFF	TUN	TUN	TUN	TUN	TUN	TUN	INSEL
P.ON	EXT	VTR	EE	H	AV1	---	VCR out	VCR out	H	H	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	INSEL
					AV2	---	VCR out	VCR out	H	H	OFF	AV2	AV2	AV2 In	AV2 In	AV2 In	AV2 In	INSEL
					AV3	---	VCR out	VCR out	H	H	OFF	AV3	AV3	AV3 In	AV3 In	AV3 In	AV3 In	INSEL
					SAT.NO	---	VCR out	VCR out	H	H	OFF	SAT	SAT	SAT	SAT	SAT	SAT	INSEL
					SAT.C+	---	VCR out	VCR out	H	H	OFF	SAT	SAT	SAT	SAT	SAT	SAT	INSEL
			VV	---	NO.TU	---	VCR out	VCR out	M/H	M/H	OFF	TUN	PB	PB	PB	PB	TUN	INSEL
					C+.TU	---	VCR out	VCR out	M/H	M/H	OFF	TUN	PB	PB	PB	PB	TUN	INSEL
					AV1	---	VCR out	VCR out	M/H	M/H	OFF	AV1	PB	PB	PB	PB	AV1 In	INSEL
					AV2	---	VCR out	VCR out	M/H	M/H	OFF	AV2	PB	PB	PB	PB	AV2 In	INSEL
					AV3	---	VCR out	VCR out	M/H	M/H	OFF	AV3	PB	PB	PB	PB	AV3 In	INSEL
					SAT.NO	---	VCR out	VCR out	M/H	M/H	OFF	SAT	PB	PB	PB	PB	SAT	INSEL
					SAT.C+	---	VCR out	VCR out	M/H	M/H	OFF	SAT	PB	PB	PB	PB	SAT	INSEL
	DECODER	TV	EE	L	NO.TU	L	VCR out	AV1 In	L	L	OFF	TUN	TUN	TUN	AV1 In	TUN	TUN	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	TUN	TUN	AV2 In	AV1 In	TUN	AV2 In	AV1 In
					C+.TU	L	VCR out	TUN IN	L	L	OFF	TUN	TUN	TUN	TUN	TUN	TUN	TUN
						M/H	VCR out	TUN IN	L	L	OFF	AV2	AV2	AV2 In	TUN	AV2 In	AV2 In	TUN
					AV1	L	VCR out	AV1 In	L	L	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
					AV2	L	VCR out	AV1 In	L	L	ON	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
					AV3	L	VCR out	AV1 In	L	L	OFF	AV3	AV3	AV3 In	AV1 In	AV3 In	AV3 In	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	AV3	AV3	AV2 In	AV1 In	AV3 In	AV2 In	AV1 In
					SAT.NO	L	VCR out	AV1 In	L	L	OFF	SAT	SAT	SAT	AV1 In	SAT	SAT	AV1 In
						M/H	AV2 In	AV1 In	M/H	L	ON	SAT	SAT	AV2 In	AV1 In	SAT	AV2 In	AV1 In
					SAT.C+	L	VCR out	SAT IN	L	L	OFF	SAT	SAT	SAT	SAT	SAT	SAT	TUN
						M/H	VCR out	SAT IN	L	L	OFF	AV2	AV2	AV2 In	SAT	AV2 In	AV2 In	TUN
				H	NO.TU	L	VCR out	AV1 In	H	L	OFF	TUN	TUN	TUN	AV1 In	TUN	TUN	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	TUN	TUN	TUN	AV1 In	TUN	TUN	AV1 In
					C+.TU	L	VCR out	TUN IN	H	L	OFF	TUN	TUN	TUN	TUN	TUN	TUN	TUN
						M/H	VCR out	TUN IN	H	L	OFF	AV2	AV2	AV2 In	TUN	AV2 In	AV2 In	TUN
					AV1	L	VCR out	AV1 In	H	L	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
					AV2	L	VCR out	AV1 In	H	L	OFF	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
					AV3	L	VCR out	AV1 In	H	L	OFF	AV3	AV3	AV3 In	AV1 In	AV3 In	AV3 In	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	AV3	AV3	AV3 In	AV1 In	AV3 In	AV3 In	AV1 In
					SAT.NO	L	VCR out	AV1 In	H	L	OFF	SAT	SAT	SAT	AV1 In	SAT	SAT	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	SAT	SAT	SAT	AV1 In	SAT	SAT	AV1 In
					SAT.C+	L	VCR out	SAT IN	H	L	OFF	SAT	SAT	SAT	SAT	SAT	SAT	SAT
						M/H	VCR out	SAT IN	H	L	ON	AV2	AV2	AV2 In	SAT	AV2 In	AV2 In	SAT

INPUT CONDITION							VIDEO OUTPUT RESULT							AUDIO OUTPUT RESULT				
POWER	AV2 SELECT	TV/ VTR	EE/ VV	OSD ON(H)	INPUT CH	AV2 PB(H)	AV1 OUT	AV2 OUT	AV1 PB(H)	AV2 PB(H)	RGB SW	VCR IN	VCR OUT	AV1 Out	AV2 Out	RF (C)	AV1 Out Selector	AV2 Out Selector
P.ON	DECODER	VTR	EE	L	NO.TU	L	VCR out	AV1 In	H	L	OFF	TUN	TUN	TUN	AV1 In	TUN	TUN	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	TUN	TUN	TUN	AV1 In	TUN	TUN	AV1 In
					C+.TU	L	VCR out	TUN IN	H	L	OFF	TUN	TUN	TUN	TUN	TUN	TUN	TUN
						M/H	VCR out	TUN IN	M/H	L	ON	AV2	AV2	AV2 In	TUN	AV2 In	AV2 In	TUN
					AV1	L	VCR out	AV1 In	H	L	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	AV1 In
						M/H	VCR out	AV1 In	M/H	L	ON	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
					AV2	L	VCR out	AV1 In	H	L	ON	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
						M/H	VCR out	AV1 In	M/H	L	ON	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
					AV3	L	VCR out	AV1 In	H	L	OFF	AV3	AV3	AV3 In	AV1 In	AV3 In	AV3 In	AV1 In
						M/H	VCR out	AV1 In	M/H	L	OFF	AV3	AV3	AV3 In	AV1 In	AV3 In	AV3 In	AV1 In
					SAT.NO	L	VCR out	AV1 In	H	L	OFF	SAT	SAT	SAT	AV1 In	SAT	SAT	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	SAT	SAT	SAT	AV1 In	SAT	SAT	AV1 In
					SAT.C+	L	VCR out	SAT IN	H	L	OFF	SAT	SAT	SAT	SAT	SAT	SAT	SAT
						M/H	VCR out	SAT IN	M/H	L	ON	AV2	AV2	AV2 In	SAT	AV2 In	AV2 In	SAT
				H	NO.TU	L	VCR out	AV1 In	H	L	OFF	TUN	TUN	TUN	AV1 In	TUN	TUN	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	TUN	TUN	TUN	AV1 In	TUN	TUN	AV1 In
					C+.TU	L	VCR out	TUN IN	H	L	OFF	TUN	TUN	TUN	TUN	TUN	TUN	TUN
						M/H	VCR out	TUN IN	H	L	OFF	AV2	AV2	AV2 In	TUN	AV2 In	AV2 In	TUN
					AV1	L	VCR out	AV1 In	H	L	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
					AV2	L	VCR out	AV1 In	H	L	OFF	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
					AV3	L	VCR out	AV1 In	H	L	OFF	AV3	AV3	AV3 In	AV1 In	AV3 In	AV3 In	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	AV3	AV3	AV3 In	AV1 In	AV3 In	AV3 In	AV1 In
					SAT.NO	L	VCR out	AV1 In	H	L	OFF	SAT	SAT	SAT	AV1 In	SAT	SAT	AV1 In
						M/H	VCR out	AV1 In	H	L	OFF	SAT	SAT	SAT	AV1 In	SAT	SAT	AV1 In
					SAT.C+	L	VCR out	SAT IN	H	L	OFF	SAT	SAT	SAT	SAT	SAT	SAT	SAT
						M/H	VCR out	SAT IN	H	L	OFF	AV2	AV2	AV2 In	SAT	AV2 In	AV2 In	SAT
			VV	---	NO.TU	L	VCR out	AV1 In	M/H	L	OFF	TUN	PB	PB	AV1 In	PB	TUN	AV1 In
						M/H	VCR out	AV1 In	M/H	L	OFF	TUN	PB	PB	AV1 In	PB	TUN	AV1 In
					C+.TU	L	VCR out	TUN IN	M/H	L	OFF	TUN	PB	PB	TUN	PB	TUN	TUN
						M/H	VCR out	TUN IN	M/H	L	OFF	AV2	PB	PB	TUN	PB	AV2 In	TUN
					AV1	L	VCR out	AV1 In	M/H	L	OFF	AV1	PB	PB	AV1 In	PB	AV1 In	AV1 In
						M/H	VCR out	AV1 In	M/H	L	OFF	AV2	PB	PB	AV1 In	PB	AV2 In	AV1 In
					AV2	L	VCR out	AV1 In	M/H	L	OFF	AV2	PB	PB	AV1 In	PB	AV2 In	AV1 In
						M/H	VCR out	AV1 In	M/H	L	OFF	AV2	PB	PB	AV1 In	PB	AV2 In	AV1 In
					AV3	L	VCR out	AV1 In	M/H	L	OFF	AV3	PB	PB	AV1 In	PB	AV3 In	AV1 In
						M/H	VCR out	AV1 In	M/H	L	OFF	AV3	PB	PB	AV1 In	PB	AV3 In	AV1 In
					SAT.NO	L	VCR out	AV1 In	M/H	L	OFF	SAT	PB	PB	AV1 In	PB	SAT	AV1 In
						M/H	VCR out	AV1 In	M/H	L	OFF	SAT	PB	PB	AV1 In	PB	SAT	AV1 In
					SAT.C+	L	VCR out	SAT IN	M/H	L	OFF	SAT	PB	PB	SAT	PB	SAT	SAT
						M/H	VCR out	SAT IN	M/H	L	OFF	AV2	PB	PB	SAT	PB	AV2 In	SAT

NOTE: NO.TU: Tuner position, DECODER OFF (e.g. ARD) RGB SW : OFF = HIGH, ON=LOW

C+TU: Tuner position, DECODER ON (e.g. PREMI) EE : Non-Playback signal VV:Playback signal

***[M/H] :In case of Personal Planner standby(not External Link), AV1 PB must not output 'M' or 'H'**

INPUT CONDITION						VIDEO OUTPUT RESULT							AUDIO OUTPUT RESULT				
POWER	AV2 SELECT	EE/ VV	OSD ON(H)	INPUT CH	AV2 PB(H)	AV1 OUT	AV2 OUT	AV1 PB(H)	AV2 PB(H)	RGB SW	VCR IN	VCR OUT	AV1 Out	AV2 Out	RF (C)	AV1 Out Selector	AV2 Out Selector
OFF	---	---	---	---	L	AV2 In	AV1 In	L	L	OFF	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					M/H	AV2 In	AV1 In	M/H	L	ON	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
PDC STAND BY or TIMER1 or Personal Planner Standby	EXT or TIMER2	---	L	TUN	L	AV2 In	AV1 In	L	L	OFF	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					M/H	AV2 In	AV1 In	*[M/H]	L	ON	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
				AV1	L	AV2 In	AV1 In	L	L	OFF	AV1	AV1	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					M/H	AV2 In	AV1 In	*[M/H]	L	ON	AV1	AV1	AV2 In	AV1 In	Mute	AV2 In	AV1 In
				AV2	L	AV2 In	AV1 In	L	L	OFF	AV2	AV2	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					M/H	AV2 In	AV1 In	*[M/H]	L	ON	AV2	AV2	AV2 In	AV1 In	Mute	AV2 In	AV1 In
				AV3	L	AV2 In	AV1 In	L	L	OFF	AV3	AV3	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					M/H	AV2 In	AV1 In	*[M/H]	L	ON	AV3	AV3	AV2 In	AV1 In	Mute	AV2 In	AV1 In
				SAT.TU	L	AV2 In	AV1 In	L	L	OFF	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					M/H	AV2 In	AV1 In	*[M/H]	L	ON	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
			H	TUN	L	VCR out	AV1 In	H	H	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
					M/H	VCR out	AV1 In	H	H	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
				AV1	L	VCR out	AV1 In	H	H	OFF	AV1	AV1	Mute	Mute	Mute	AV1 In	AV1 In
					M/H	VCR out	AV1 In	H	H	OFF	AV1	AV1	Mute	Mute	Mute	AV1 In	AV1 In
				AV2	L	VCR out	AV1 In	H	H	OFF	AV2	AV2	Mute	Mute	Mute	AV2 In	AV1 In
					M/H	VCR out	AV1 In	H	H	OFF	AV2	AV2	Mute	Mute	Mute	AV2 In	AV1 In
				AV3	L	VCR out	AV1 In	H	H	OFF	AV3	AV3	Mute	Mute	Mute	AV3 In	AV1 In
					M/H	VCR out	AV1 In	H	H	OFF	AV3	AV3	Mute	Mute	Mute	AV3 In	AV1 In
				SAT.TU	L	VCR out	AV1 In	H	H	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In
					M/H	VCR out	AV1 In	H	H	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In
	DECODER	---	L	TUN	L	AV2 In	AV1 In	L	L	OFF	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					M/H	AV2 In	AV1 In	M/H	L	ON	TUN	TUN	AV2 In	AV1 In	Mute	AV2 In	AV1 In
				AV1	L	AV2 In	AV1 In	L	L	OFF	AV1	AV1	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					M/H	AV2 In	AV1 In	M/H	L	ON	AV2	AV2	AV2 In	AV1 In	Mute	AV2 In	AV1 In
				AV2	L	AV2 In	AV1 In	L	L	OFF	AV2	AV2	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					M/H	AV2 In	AV1 In	M/H	L	ON	AV2	AV2	AV2 In	AV1 In	Mute	AV2 In	AV1 In
				AV3	L	AV2 In	AV1 In	L	L	OFF	AV3	AV3	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					M/H	AV2 In	AV1 In	M/H	L	ON	AV3	AV3	AV2 In	AV1 In	Mute	AV2 In	AV1 In
				SAT.TU	L	AV2 In	AV1 In	L	L	OFF	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
					M/H	AV2 In	AV1 In	M/H	L	ON	SAT	SAT	AV2 In	AV1 In	Mute	AV2 In	AV1 In
			H	TUN	L	VCR out	AV1 In	H	L	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
					M/H	VCR out	AV1 In	H	L	OFF	TUN	TUN	Mute	Mute	Mute	TUN	AV1 In
				AV1	L	VCR out	AV1 In	H	L	OFF	AV1	AV1	Mute	Mute	Mute	AV1 In	AV1 In
					M/H	VCR out	AV1 In	H	L	OFF	AV2	AV2	Mute	Mute	Mute	AV2 In	AV1 In
				AV2	L	VCR out	AV1 In	H	L	OFF	AV2	AV2	Mute	Mute	Mute	AV2 In	AV1 In
					M/H	VCR out	AV1 In	H	L	OFF	AV2	AV2	Mute	Mute	Mute	AV2 In	AV1 In
				AV3	L	VCR out	AV1 In	H	L	OFF	AV3	AV3	Mute	Mute	Mute	AV3 In	AV1 In
					M/H	VCR out	AV1 In	H	L	OFF	AV3	AV3	Mute	Mute	Mute	AV3 In	AV1 In
				SAT.TU	L	VCR out	AV1 In	H	L	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In
					M/H	VCR out	AV1 In	H	L	OFF	SAT	SAT	Mute	Mute	Mute	SAT	AV1 In

INPUT CONDITION						VIDEO OUTPUT RESULT							AUDIO OUTPUT RESULT				
POWER	AV2 SELECT	EE/ VV	OSD ON(H)	INPUT CH	AV2 PB(H)	AV1 OUT	AV2 OUT	AV1 PB(H)	AV2 PB(H)	RGB SW	VCR IN	VCR OUT	AV1 Out	AV2 Out	RF (C)	AV1 Out Selector	AV2 Out Selector
P.ON	EXT	EE	L	TUN	---	VCR out	VCR out	L	L	OFF	TUN	TUN	TUN	TUN	TUN	TUN	INSEL
				AV1	---	VCR out	VCR out	L	L	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	INSEL
	or			AV2	---	VCR out	VCR out	L	L	ON	AV2	AV2	AV2 In	AV2 In	AV2 In	AV2 In	INSEL
				AV3	---	VCR out	VCR out	L	L	OFF	AV3	AV3	AV3 In	AV3 In	AV3 In	AV3 In	INSEL
	TIMER1			SAT.TU	---	VCR out	VCR out	L	L	OFF	SAT	SAT	SAT	SAT	SAT	SAT	INSEL
			H	TUN	---	VCR out	VCR out	H	H	OFF	TUN	TUN	TUN	TUN	TUN	TUN	INSEL
	or			AV1	---	VCR out	VCR out	H	H	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	INSEL
				AV2	---	VCR out	VCR out	H	H	OFF	AV2	AV2	AV2 In	AV2 In	AV2 In	AV2 In	INSEL
	TIMER2			AV3	---	VCR out	VCR out	H	H	OFF	AV3	AV3	AV3 In	AV3 In	AV3 In	AV3 In	INSEL
				SAT.TU	---	VCR out	VCR out	H	H	OFF	SAT	SAT	SAT	SAT	SAT	SAT	INSEL
		VV	---	TUN	---	VCR out	VCR out	M/H	M/H	OFF	TUN	PB	PB	PB	PB	TUN	INSEL
				AV1	---	VCR out	VCR out	M/H	M/H	OFF	AV1	PB	PB	PB	PB	AV1 In	INSEL
				AV2	---	VCR out	VCR out	M/H	M/H	OFF	AV2	PB	PB	PB	PB	AV2 In	INSEL
				AV3	---	VCR out	VCR out	M/H	M/H	OFF	AV3	PB	PB	PB	PB	AV3 In	INSEL
				SAT.TU	---	VCR out	VCR out	M/H	M/H	OFF	SAT	PB	PB	PB	PB	SAT	INSEL
	DECODER	EE	L	TUN	L	VCR out	TUN IN	L	L	OFF	TUN	TUN	TUN	TUN	TUN	TUN	TUN
					M/H	VCR out	TUN IN	L	L	ON	AV2	AV2	AV2 In	TUN	AV2 In	AV2 In	TUN
				AV1	L	VCR out	AV1 In	L	L	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	AV1 In
					M/H	VCR out	AV1 In	L	L	ON	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
				AV2	L	VCR out	AV1 In	L	L	ON	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
					M/H	VCR out	AV1 In	L	L	ON	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
				AV3	L	VCR out	AV1 In	L	L	OFF	AV3	AV3	AV3 In	AV1 In	AV3 In	AV3 In	AV1 In
					M/H	VCR out	AV1 In	L	L	OFF	AV3	AV3	AV3 In	AV1 In	AV3 In	AV3 In	AV1 In
				SAT.TU	L	VCR out	SAT IN	L	L	OFF	SAT	SAT	SAT	SAT	SAT	SAT	SAT
					M/H	VCR out	SAT IN	L	L	ON	AV2	AV2	AV2 In	SAT	AV2 In	AV2 In	SAT
			H	TUN	L	VCR out	TUN IN	H	L	OFF	TUN	TUN	TUN	TUN	TUN	TUN	TUN
					M/H	VCR out	TUN IN	H	L	OFF	AV2	AV2	AV2 In	TUN	AV2 In	AV2 In	TUN
				AV1	L	VCR out	AV1 In	H	L	OFF	AV1	AV1	AV1 In	AV1 In	AV1 In	AV1 In	AV1 In
					M/H	VCR out	AV1 In	H	L	OFF	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
				AV2	L	VCR out	AV1 In	H	L	OFF	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
					M/H	VCR out	AV1 In	H	L	OFF	AV2	AV2	AV2 In	AV1 In	AV2 In	AV2 In	AV1 In
				AV3	L	VCR out	AV1 In	H	L	OFF	AV3	AV3	AV3 In	AV1 In	AV3 In	AV3 In	AV1 In
					M/H	VCR out	AV1 In	H	L	OFF	AV3	AV3	AV3 In	AV1 In	AV3 In	AV3 In	AV1 In
				SAT.TU	L	VCR out	SAT IN	H	L	OFF	SAT	SAT	SAT	SAT	SAT	SAT	SAT
					M/H	VCR out	SAT IN	H	L	ON	AV2	AV2	AV2 In	SAT	AV2 In	AV2 In	SAT
		VV	---	TUN	L	VCR out	TUN IN	M/H	L	OFF	TUN	PB	PB	TUN	PB	TUN	TUN
					M/H	VCR out	TUN IN	M/H	L	OFF	AV2	PB	PB	TUN	PB	AV2 In	TUN
				AV1	L	VCR out	AV1 In	M/H	L	OFF	AV1	PB	PB	AV1 In	PB	AV1 In	AV1 In
					M/H	VCR out	AV1 In	M/H	L	OFF	AV2	PB	PB	AV1 In	PB	AV2 In	AV1 In
				AV2	L	VCR out	AV1 In	M/H	L	OFF	AV2	PB	PB	AV1 In	PB	AV2 In	AV1 In
					M/H	VCR out	AV1 In	M/H	L	OFF	AV2	PB	PB	AV1 In	PB	AV2 In	AV1 In
				AV3	L	VCR out	AV1 In	M/H	L	OFF	AV3	PB	PB	AV1 In	PB	AV3 In	AV1 In
					M/H	VCR out	AV1 In	M/H	L	OFF	AV3	PB	PB	AV1 In	PB	AV3 In	AV1 In
				SAT.TU	L	VCR out	SAT IN	M/H	L	OFF	SAT	PB	PB	SAT	PB	SAT	SAT
					M/H	VCR out	SAT IN	M/H	L	OFF	AV2	PB	PB	SAT	PB	AV2 In	SAT

NOTE: RGB SW : OFF = HIGH, ON=LOW

EE : Non-Playback signal VV:Playback signal

***[M/H] :In case of Personal Planner standby(not External Link), AV1 PB must not output 'M' or 'H'**

SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART (SP MODE)

Ref. No.	IC1501								IC1502											
MODE	1	2	3	4					1	2	3	4								
STOP	1.1	2.3	0.0	0.0					0.0	1.1	0.1	0.0								
PLAY	1.1	2.3	5.0	0.0					0.0	1.1	5.0	0.0								
REC	1.2	2.3	5.0	0.0					0.0	1.1	5.0	0.0								
F.F	1.2	2.3	2.4	0.0					0.0	1.1	2.4	0.0								
REW	1.2	2.3	2.4	0.0					0.0	1.1	2.4	0.0								

Ref. No.	IC2501																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0.7	0.0	5.1	0.0	5.1	1.2	1.1	2.7	0.0	0.0	0.0	1.8	0.2	1.6	4.3	0.7	15.5	0.7	0.0	0.7
PLAY	3.7	0.0	5.1	1.0	5.1	1.2	1.1	2.5	0.0	0.0	1.0	2.6	0.3	1.8	1.8	3.7	15.5	3.7	0.0	3.7
REC	3.8	0.0	5.1	1.0	5.1	1.2	1.2	2.5	0.0	0.0	1.0	2.6	0.3	1.8	1.8	3.7	15.5	3.8	0.0	3.8
F.F	3.6	0.0	5.1	1.0	5.1	1.2	1.1	2.5	0.0	0.0	1.1	2.6	0.4	1.8	1.8	3.7	15.5	3.7	0.0	3.6
REW	3.8	0.0	5.1	1.0	5.1	1.2	1.1	2.5	0.0	0.0	1.0	2.6	0.3	1.8	1.8	3.8	15.5	3.7	0.0	3.8

Ref. No.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	5.0	4.9	4.9	4.2	0.1	4.7	0.0	0.0	0.0
PLAY	4.8	1.4	0.0	0.0	1.7	0.0	0.0	0.0	2.5	0.0	4.3	5.1	4.9	4.8	0.1	4.1	4.8	0.0	0.0	0.0
REC	4.8	1.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	5.1	4.9	4.7	4.2	0.1	4.8	0.0	4.8	0.0
F.F	5.1	1.4	0.0	0.0	0.1	0.0	0.0	0.0	2.4	0.0	0.0	5.1	4.9	4.9	4.2	0.1	4.8	0.0	0.0	0.0
REW	5.1	1.4	0.0	0.0	0.1	0.0	0.0	0.0	2.4	0.0	0.0	5.1	4.8	5.0	4.3	0.1	4.8	0.0	0.0	0.0

Ref. No.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	5.0	4.2	0.0	0.0	0.0	4.5	0.0	4.8	0.0	0.0	-	-	4.9	1.0	1.5	3.0	0.0	0.0	0.0	4.8
PLAY	5.0	4.2	0.0	2.4	2.4	4.5	0.0	0.0	0.0	0.0	-	-	4.9	0.8	1.5	3.0	4.8	0.0	0.0	4.9
REC	5.0	4.2	0.0	2.4	0.0	4.5	0.0	4.8	0.0	0.0	-	-	4.9	0.8	1.5	3.0	0.0	0.0	4.8	0.0
F.F	5.0	4.2	0.0	2.4	0.0	4.5	0.0	4.8	0.0	0.0	-	-	4.9	0.9	1.5	3.1	0.0	0.0	0.0	4.9
REW	5.0	4.2	0.0	2.4	0.0	4.5	0.0	4.8	0.0	0.0	-	-	4.9	0.9	1.5	3.0	0.0	0.0	0.0	4.9

Ref. No.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0.0	0.0	5.0	0.0	4.8	4.8	0.0	0.0	5.0	0.0	4.7	4.8	1.4	2.1	5.0	1.9	0.0	2.5	4.8	0.0
PLAY	0.0	0.0	5.0	4.8	0.0	0.0	0.0	0.0	5.0	0.0	4.7	4.9	1.4	2.1	5.0	1.8	0.0	2.5	4.9	0.0
REC	0.0	4.8	5.0	4.8	0.0	0.0	0.0	0.0	5.0	0.0	4.7	4.8	0.0	3.4	5.0	1.9	0.0	2.5	4.8	0.0
F.F	0.0	0.0	5.0	4.8	4.8	0.0	0.0	0.0	5.0	0.0	4.7	4.9	1.4	2.1	5.0	1.9	0.0	2.5	4.9	0.0
REW	0.0	0.0	5.0	4.8	4.9	0.0	0.0	0.0	5.0	0.0	4.7	4.9	1.4	2.1	5.0	1.9	0.0	2.5	4.9	0.0

Ref. No.	IC6001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	1.9	1.9	1.0	2.0	0.3	0.0	0.0	0.0	4.9	0.0	0.0	4.8	0.0	0.0	0.0	5.2	5.2	0.0	0.0	2.7
PLAY	1.8	1.9	1.0	2.0	0.3	0.0	0.0	0.0	4.9	0.0	0.0	4.8	0.0	0.0	0.0	5.2	5.2	0.0	2.5	2.5
REC	1.9	1.9	1.0	2.0	4.5	0.0	0.0	0.0	4.8	0.0	0.0	4.8	0.0	0.0	0.0	5.2	5.2	0.0	2.4	2.5
F.F	1.9	1.9	1.0	2.0	0.3	0.0	0.0	0.0	4.9	0.0	0.0	4.8	0.0	0.0	0.0	5.2	5.2	0.0	2.9	2.5
REW	1.9	1.9	1.0	2.0	0.3	0.0	0.0	0.0	4.9	0.0	0.1	4.8	0.0	0.0	0.0	5.2	5.2	0.0	2.9	2.5

Ref. No.	IC6001																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
STOP	4.9	0.0	0.0	0.0	4.9	5.2	5.2	5.2	5.2	0.0	0.0	0.0	0.1	0.1	5.0	4.9	0.0	0.0	5.0	5.0
PLAY	4.8	0.4	0.0	0.0	2.4	4.9	4.9	4.9	5.2	0.0	0.0	0.0	5.0	5.0	5.0	4.9	2.7	2.4	4.9	4.9
REC	4.8	0.4	0.0	0.0	2.4	4.9	4.9	4.9	5.2	5.2	5.2	0.0	4.9	4.8	5.0	4.8	2.7	2.4	4.9	4.9
F.F	4.8	4.8	0.0	0.0	2.4	4.9	4.9	4.9	5.2	5.2	5.2	0.0	2.4	2.3	5.1	4.8	2.7	2.5	5.0	5.0
REW	4.8	4.8	4.8	0.0	2.4	4.9	4.9	4.9	5.2	5.2	5.2	0.0	2.3	2.4	5.1	4.9	2.7	2.5	5.0	5.0

Ref. No.	IC6001																			
MODE	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116				
STOP	0.0	0.0	2.5	2.5	0.0	0.0	0.0	2.5	2.5	0.0	2.5	2.5	2.5	2.5	5.1	5.1				
PLAY	0.0	0.0	2.5	2.5	0.0	0.0	1.0	2.5	2.5	0.0	2.5	2.5	2.5	2.5	5.1	5.1				
REC	0.0	0.0	2.5	2.5	0.0	0.0	1.0	2.5	2.5	0.0	1.9	2.3	2.5	2.5	5.1	5.1				
F.F	0.0	1.6	2.5	2.5	0.0	0.0	1.0	2.5	2.5	0.0	2.5	2.5	2.6	2.6	5.1	5.1				
REW	0.0	1.6	2.5	2.5	0.0	0.0	1.0	2.5	2.5	0.0	2.5	2.5	2.6	2.6	5.1	5.1				

Ref. No.	IC6002																			
MODE	1	2	3	4	5	6	7	8												
STOP	0.0	0.0	0.0	0.0	4.9	4.9	4.8	5.0												
PLAY	0.0	0.0	0.0	0.0	4.9	5.0	4.9	5.0												
REC	0.0	0.0	0.0	0.0	4.9	4.9	4.8	5.0												
F.F	0.0	0.0	0.0	0.0	5.0	5.0	4.9	5.0												
REW	0.0	0.0	0.0	0.0	5.0	5.0	4.8	5.1												

Ref. No.	IC6003																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0.0	0.0	0.0	4.9	4.9	0.0	0.4	0.0	5.0	2.5	0.0	2.6	0.0	2.6	2.6	1.4	1.3	0.0	5.0	5.0
PLAY	0.0	0.0	0.0	5.0	4.9	0.0	0.4	0.0	5.0	2.5	0.0	2.6	0.0	2.6	2.6	1.4	1.3	0.0	5.0	5.0
REC	0.0	0.0	0.0	4.9	4.9	0.0	0.4	0.0	5.0	2.5	0.0	2.6	0.0	2.6	2.6	1.4	1.3	0.0	5.0	5.0
F.F	0.0	0.0	0.0	5.0	5.0	0.0	0.4	0.0	5.1	2.5	0.0	2.6	0.0	2.6	2.6	1.4	1.3	0.0	5.1	5.1
REW	0.0	0.0	0.0	5.0	5.0	0.0	0.4	0.0	5.1	2.5	0.0	2.6	0.0	2.6	2.6	1.4	1.3	0.0	5.1	5.1

SYSTEM CONTROL & SERVO TRs DC VOLTAGE CHART (SP MODE)

Ref. No.	Q1501			Q1502			Q6002			Q6004			Q6005					
MODE	E	C		E	C		E	C	B	E	C	B	1	2	3	4	5	6
STOP	4.7	0.0		4.9	0.0		2.5	1.9	0.0	1.9	0.0	1.2	5.0	0.0	0.0	0.5	0.0	0.0
PLAY	4.8	0.0		5.0	0.0		2.5	0.0	1.8	1.9	0.0	1.2	5.0	0.0	0.0	0.5	0.0	0.0
REC	4.7	0.0		4.9	0.0		2.5	0.0	1.9	1.9	0.0	1.2	5.0	0.0	0.0	0.5	0.0	0.0
F.F	4.7	0.0		5.1	0.0		2.5	0.0	1.9	1.9	0.0	1.2	5.0	0.0	0.0	0.5	0.0	0.0
REW	4.8	0.0		5.1	0.0		2.5	0.0	1.9	1.9	0.0	1.2	5.0	0.0	0.0	0.5	0.0	0.0

Ref. No.	Q6007			Q6008			Q6009		
MODE	E	C	B	E	C	B	E	C	B
STOP	0.0	4.4	0.0	-0.1	11.8	0.0	1.9	5.0	2.5
PLAY	0.0	4.4	0.0	11.2	11.8	11.8	1.8	5.0	2.5
REC	0.0	4.7	0.0	-0.1	11.8	0.0	1.9	5.0	2.5
F.F	0.0	4.4	0.0	0.0	11.8	0.0	1.9	5.0	2.5
REW	0.0	4.4	0.0	0.0	11.8	0.0	1.9	5.0	2.5

Ref. No.	QR6001			QR6004		
MODE	E	C	B	E	C	B
STOP	0.0	0.0	4.8	0.0	0.0	4.8
PLAY	0.0	11.8	0.0	0.0	0.0	4.8
REC	0.0	0.0	4.8	0.0	0.0	4.8
F.F	0.0	0.0	4.8	0.0	0.0	4.8
REW	0.0	0.0	4.8	0.0	0.0	4.8

443NT [L]	4.43 NTSC Ⓛ
A. COMP	AUDIO COMPONENT SIGNAL
A. COMPO	AUDIO COMPONENT SIGNAL
A. D.P [L]	AUDIO DUBBING PAUSE Ⓛ
A. D/L [L]	AUDIO DUBBING PAUSE Ⓛ
A. DEF [S]	AUDIO DEFEAT
A. DEF [S] [L]	AUDIO DEFEAT
A. DUB P [L]	AUDIO DUBBING PAUSE Ⓛ
A. DUB [H]	AUDIO DUBBING Ⓗ
A. ERASE	AUDIO ERASE
A. H. SW	AUDIO HEAD SWITCHING PULSE
A. HEAD [R]	AUDIO HEAD (REC)
A. HEAD [W]	AUDIO HEAD (PLAY)
A. IN [L]	AUDIO INPUT (L)
A. IN [R]	AUDIO INPUT (R)
A. MUT [H]	AUDIO MUTE Ⓗ
A. MUTE [H]	AUDIO MUTE Ⓗ
A. OUT [L]	AUDIO OUTPUT (L)
A. OUT [R]	AUDIO OUTPUT (R)
A. RF OUT	AUDIO RF SIGNAL OUTPUT
A/VS/S. DATA	AV SW/SERIAL DATA
AC ONLINE	AC ONLINE
AC. O/EE. H	AC ONLINE/EE Ⓗ
AFC S C	AFC S CURVE
AFC [S]	AFC S CURVE
AFC. DEF	AFC DEFEAT
ARFC OUT	AUDIO RF SIGNAL OUTPUT
ART. V	ARTIFICIAL VERTICAL SYNC SIGNAL
ART. V. MM	ARTIFICIAL VERTICAL SYNC SIGNAL MONO MULTI
ART. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL Ⓗ/NORMAL
AT. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL
ATSW/TEST/NOR/SE	TEST/NORMAL/SERVICE
AUDIO IN [L]	AUDIO INPUT (L)
AUDIO IN [R]	AUDIO INPUT (R)
AUDIO OUT [L]	AUDIO OUTPUT (L)
AUDIO OUT [R]	AUDIO OUTPUT (R)
AUDIO SELECT [H]	AUDIO SELECT Ⓗ
AUDIO. L	AUDIO (L)
AUDIO. R	AUDIO (R)
AV CNT	AV CONTROL
AV CTL	AV CONTROL
AV CTL/S. CLK	AV CONTROL/SERIAL CLOCK
AV. C.M.	AV CONTROL MODE
AVCNT/METER. R	AV CONTROL/LEVEL METER (R)
AVSW/METER. L	AV SW/LEVEL METER (L)
B MODE. H	B MODE Ⓗ
B.G.P	BURST GATE PULSE
BACKUP 5V	BACK UP 5V
BAND. U.E.	BAND U
BANDVL. D	BAND VL
BI/MI [L]	BILINGUAL/MIX Ⓛ
BIL	BILINGUAL
BIL [L]	BILINGUAL Ⓛ
BIL. [H]	BILINGUAL Ⓗ
BIL/M1 [L]	BILINGUAL Ⓛ
BS CLOCK	BS CLOCK
BS DATA	BS DATA
BS LCH IN	BS L CHANNEL INPUT
BS MIX [H]	BS MIX Ⓗ
BS MON [H]	BS MONITOR Ⓗ
BS MONI [H]	BS MONITOR Ⓗ
BS RCH IN	BS R CHANNEL INPUT
BS VIDEO	BS VIDEO SIGNAL
BS VIDEO/BS1	BS VIDEO SIGNAL
BS [H]	BS Ⓗ
BS. LEVEL	BS LEVEL
BS. M [H]	BS MONITOR Ⓗ
BS/VTR [H]	BS/VTR Ⓗ
BUS CLK	BUS CLOCK
BUS LSN	BUS LISTEN
BUS TLK	BUS TALK
BUZZER	BUZZER
CAP EC	CAPSTAN TORQUE CONTROL
CAP M GND	CAPSTAN MOTOR GND
CAP. ET	CAPSTAN TORQUE CONTROL
CAP. FG1	CAPSTAN FG1 PULSE
CAP. FG2	CAPSTAN FG2 PULSE
CAS. SW	CASSETTE SW
CCN	PLAYBACK CONTROL SIGNAL (–)
CCP	PLAYBACK CONTROL SIGNAL (+)
CHM	CONTROL SIGNAL (+)
CHP	CONTROL SIGNAL (–)
CINEM [L]	CINEMA Ⓛ
CINEMA [L]	CINEMA Ⓛ
CINEMA/MIX	CINEMA/MIX
CKL	RATCH LOCK
CKS	SHIFT LOCK
CL	CLOCK
CLK	CLOCK
CLK (C.G)	CLOCK
CLOCK. IN	CLOCK INPUT
CLP	CLAMP
COL/B/W/NOR	COLOUR/BLACK & WHITE/NORMAL
COLOR [H]	COLOUR Ⓗ
CONV	CONVERTOR
CS	CHIP SELECT
CTL GND	CONTROL GND
CTL HEAD [+]	CONTROL HEAD (+)
CTL HEAD [–]	CONTROL HEAD (–)
CTL [+]	CONTROL HEAD (+)
CTL [–]	CONTROL HEAD (–)
CUE BIAS	CUE BIAS
CURRENT LIM	CURRENT LIMMITER
CYL ET	CYLINDER TORQUE CONTROL

CYL GND	CYLINDER GND
D.F.M. REC [H]	DELAIED FM RECORDING Ⓗ
D. FM REC [L]	DELAIED FM RECORDING Ⓛ
D. GND	DIGITAL GND
D. REC [H]	DELAYED RECORDING Ⓗ
D4/S. LED	D4/STILL LED
D4/STILLED	D4/STILL LED
DAC [CLK]	TUNER DAC (CLOCK)
DAC/FSCS	TUNER DAC/FS CHIP SELECT
DAREC [H]	DELAYED AUDIO RECORDING Ⓗ
DATA	DATA
DECODER [L]	DECODER (L)
DECODER [R]	DECODER (R)
DEW	DEW
DEW SNS	DEW SENSOR
DFMRE [H]	DELAYED FM AUDIO RECORDING Ⓗ
E. REC 5V	EXCEPT RECORDING 5V
EC	ERROR TORQUE CONTROL
ECR	ERROR TORQUE CONTROL REFERENCE VOLTAGE
EDT TRIG [L]	EDIT TRIGGER Ⓛ
EDIT [H]	EDIT Ⓗ
EE [H]	EE Ⓗ
EE [H]/INS [M]	EE Ⓗ/INSERT Ⓜ
EE. VV. TR	EE/VV/TRICK PLAY
EJECT. PO	EJECT POSITION
EJECT/VDET	EJECT/REVERSE SLOW LOCK
ENV. SEL	ENVELOPE SELECT
ENVE. OUT	ENVELOPE OUTPUT
ENVE. SEL	ENVELOPE SELECT
ENV SELECT	ENVELOPE SELECT
EP [H]	LP Ⓗ
EP/LP [H]	LP Ⓗ
EP/LP/SP	LP/SP
EP/SS [H]	LP/SLOW/STILL/STOP Ⓗ
EPROMCS	EPROM CHIP SELECT
EX. REC 5V	EXCEPT RECORDING 5V
FF/REW [L]	FIRST FORWARD/REWIND Ⓛ
FG1 IN	FG1 PULSE INPUT
FG2 IN	FG2 PULSE INPUT
FILTER ADJUSTMENT	FILTER ADJUSTMENT
FLY ERASE [H]	FLYING ERASE HEAD ON Ⓗ
FLY ON [H]	FLYING ERASE HEAD ON Ⓗ
FLY. E [H]	FLYING ERASE HEAD ON Ⓗ
FM MUT [H]	FM AUDIO MUTE Ⓗ
FM MUTE [H]	FM AUDIO MUTE Ⓗ
FM OUT [L]	FM OUTPUT (L)
FM OUT [R]	FM OUTPUT (R)
FM PACK OUT [L]	FM PACK OUTPUT (L)
FM PACK OUT [R]	FM PACK OUTPUT (R)
FM/BS SEL [L]	FM/BS SELECT (L)
FM/BS SEL [R]	FM/BS SELECT (R)
FS. CLK	FS CLOCK
FUL. E [H]	FULL ERASE HEAD ON Ⓗ
FULL. E [H]	FULL ERASE HEAD ON Ⓗ

FULL. E. 12V	FULL ERASE 12V
GND [A]	GND (ANALOG)
GND [TU]	GND (TUNER)
GND/N. SW. 12V	GND/NON SW 12V
H. SYNC	HORIZONTAL SYNC
H. AMP. SW	HEAD AMP SW PULSE
H. P <R>	HEAD PHONE (R)
H. P <L>	HEAD PHONE (L)
H. P GND	HEAD PHONE GND
H. P OUT [L]	HEAD PHONE OUTPUT (L)
H. P OUT [R]	HEAD PHONE OUTPUT (R)
H. SW	HEAD SW PULSE
HEAD PHONE [L]	HEAD PHONE (L)
HEAD PHONE [R]	HEAD PHONE (R)
HEAD SW	HEAD SW
HEATER [+]	HEATER (+)
HEATER [–]	HEATER (–)
HSS	HORIZONTAL SYNC SIGNAL
HTR [+]	HEATER (+)
HTR [–]	HEATER (–)
I RFE	REFERENCE CURRENT
ICL	CONTROL AGC CIRCUIT
IF	INTERMEDIATE FREQUENCY
IN SELA1	INPUT SELECT A1 POSITION
IN SELA2	INPUT SELECT A2 POSITION
IN SELA3	INPUT SELECT A3 POSITION
INS L/R [L]	INSERT Lch/Rch Ⓛ
INS. [H]	INSERT Ⓗ
INSEL A1	INPUT SELECT A1 POSITION
INSEL A2	INPUT SELECT A2 POSITION
INSERT	INSERT
INSERT [H]	INSERT Ⓗ
IO CS	INPUT/OUTPUT CHIP SELECT
JOG1	JOG1
JOG S3 LED/FOWRD	JOG LED/FORWARD LED
JOG/F. LED	JOG LED/FORWARD LED
JSB [H]	JSB Ⓗ
JST. CLCK	JUST CLOCK
JST. CLK	JUST CLOCK
JST. CLOCK	JUST CLOCK
L. OUT	Lch OUTPUT
L. CH [H]	Lch Ⓗ
L. CH [L]	Lch Ⓛ
LED (MAIN)	LED (MAIN)
LED (STEREO)	LED (STEREO)
LED (SUB)	LED (SUB)
LED CKL	LED SERIAL CLOCK
LED CKS	LED SERIAL CLOCK
LED DATA	LED SERIAL DATA
LINE IN 1 [L]	LINE INPUT 1 (L)
LINE IN 1 [R]	LINE INPUT 1 (R)
LINE IN 2 [L]	LINE INPUT 2 (L)
LINE IN 2 [R]	LINE INPUT 2 (R)
LINE IN V	LINE INPUT VIDEO
LINE IN [L]	LINE INPUT (L)

LINE IN [R]	LINE INPUT (R)
LINE OUT [L]	LINE OUTPUT (L)
LINE OUT [R]	LINE OUTPUT (R)
LP [H]	LP Ⓗ
LPTRI [L]	LP TRICK PLAY Ⓛ
Lch/A. DUB	Lch/AUDIO DUBBING
M GND	MOTOR GND
M REG	MOTOR REGULATOR
MAIN OUT	MAIN OUTPUT
MAIN [L]	MAIN Ⓛ
MAIN/MONO	MAIN/MONAURAL
MAX IN	MAXIMAM INPUT
MES [H]	MESECAM Ⓗ
MESE [H]	MESECAM Ⓗ
MESE [L]	MESECAM Ⓛ
METER 5V	LEVEL METER 5V
METER [L]	LEVEL METER (L)
METER [R]	LEVEL METER (R)
METER. L/AVS	LEVEL METER (L)
METER. R/AVC	LEVEL METER (R)
MI/BI [L]	MIX Ⓗ/BILIGUAL
MIC GND	MIC GND
MIC IN	MIC INPUT
MIC IN [L]	MIC INPUT (L)
MIC IN [R]	MIC INPUT (R)
MIC [H]	MIC Ⓗ
MIX [H]	MIX Ⓗ
MIX [H]/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ
MIX/CINE	MIX Ⓗ/CINEMA SOUND Ⓛ
MIX/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ
MN. H/M. L	MONAURAL Ⓗ/MAIN Ⓛ
MN. H/MAI. L	MONAURAL Ⓗ/MAIN Ⓛ
MN2/MES. L	MONAURAL 2/MESECAM Ⓛ
MODE SEL	AUDIO MODE SELECT
MODE SW	AUDIO MODE SW
MODE. S. IN	AUDIO MODE SELECT INPUT
MODE. S. OUT	AUDIO MODE SELECT OUTPUT
MONO [H]	MONAURAL Ⓗ
MONO [H]/MAIN [L]	MONAURAL Ⓗ/MAIN Ⓛ
MONO2 [L]	MONAURAL 2
MONO2/MESE [FM(L)]	MONAURAL 2/MESECAM (FM Ⓛ)
MOTOR GND	MOTOR GND
MUTE	MUTE
N. A. REC [L]	NORMAL AUDIO RECORDING
N. SW 12V	NON SW 12V
N. SW. 5. DET	NON SW 5V DETECT
NICAM	NICAM
NICAM [L]	NICAM Ⓛ
NOL [H]	PAL Ⓗ/4.43 NTSC Ⓜ/3.58 NTSC Ⓛ
NOR/SOFT [H]	NORMAL/SOFT TAPE PLAY Ⓗ
NORMAL [H]	NORMAL Ⓗ
NR BIAS	NR BIAS
NTSC [L]	NTSC Ⓛ
OCH	CONTROL AGC CIRCUIT
OUT	OUTPUT

P-OFF [H]	POWER OFF Ⓗ
P-OFF [L]	POWER OFF Ⓛ
P. FAIL	POWER FAILURE DETECT
P. OFF [H]	POWER OFF Ⓗ
P. OFF [L]	POWER OFF Ⓛ
PAL [H]	PAL Ⓗ
PAL [L]/NTSC [H]	PAL Ⓛ/NTSC Ⓗ
PB ADJ OUT	PLAYBACK ADJUST OUTPUT
PB OUT	PLAYBACK OUTPUT
PB. H	PLAYBACK Ⓗ
PFG	PG/FG
PHOTSN +B	PHOTO SENSOR +B
PICT. CNT	PICTURE CONTROL
PLAY LED/RVS LED	PLAY LED/REVERSE LED
PLAY. PO	PLAY POSITION
PLAY/R. LED	PLAY LED/REVERSE LED
PLY/DEW	PLAY/DEW Ⓗ
POWER OFF [L]	POWER OFF Ⓛ
PREROLL [H]	PREROLL Ⓗ
PWRFAIL	POWER FAILURE DETECT
R. CH [H]	Rch Ⓗ
R. CH [L]	Rch Ⓛ
R. ST	RESET
R/S/F	REVERSE Ⓗ/STOP Ⓜ/FORWARD Ⓛ
RCH [H]	Rch Ⓗ
REC 12V	RECORDING 12V
REC CHROMA	RECORDING CHROMINANCE SIGNAL
REC H	RECORDING Ⓗ
REC IN	RECORDING INPUT
REC OUT [L]	RECORDING OUTPUT Ⓛ
REC START	RECORDING START
REC VR [C]	RECORDING VOLUME (COMMON)
REC VR [L]	RECORDING VOLUME (L)
REC VR [R]	RECORDING VOLUME (R)
REC Y	RECORDING LUMINANCE SIGNAL
REC [H]	RECORDING Ⓗ
REC. C	RECORDING CHROMINANCE SIGNAL
REC. Y	RECORDING LUMINANCE SIGNAL
REC/EE CTL	RECORDING/EE CONTROL
REEL-T	REEL PULSE (TAKE-UP)
REEL-S	REEL PULSE (SUPPLY)
REGULATOR FILTER	REGULATOR FILTER
RESET	RESET
REV M F/R	REVIEW MOTOR FORWARD/REVERSE
REV M V1	REVIEW MOTOR V1
REV M V2	REVIEW MOTOR V2
REV MOTOR F/R	REVIEW MOTOR FORWARD/REVERSE
REV MOTOR V1	REVIEW MOTOR V1
REV MOTOR V2	REVIEW MOTOR V2
REV MOTOR [+]	REVIEW MOTOR (+)
REV MOTOR [–]	REVIEW MOTOR (+)
REV. M. GND	REVIEW MOTOR GND
RF. CHROMA	RF CHROMINANCE SIGNAL

RF OUT	RF OUTPUT
RF Y	RF LUMINANCE SIGNAL
RF. Y. IN	RF LUMINANCE SIGNAL INPUT
RF. Y. OUT	RF LUMINANCE SIGNAL OUTPUT
ROTAR. SW	ROTARY SW
ROTARY	ROTARY SW
RST	RESET
RST [L]	RESET Ⓛ
Rch/INST	Rch/INSERT
S IN	SERIAL DATA INPUT
S OUT	SERIAL DATA OUTPUT
S-PHOTO	SUPPLY PHOTO TRANSISTOR
S-RL. PLS	SUPPLY REEL PULSE
S. CLK	SERIAL CLOCK
S. CLK/AV	SERIAL CLOCK/AV
S. DATA	SERIAL DATA
S. DATA/A	SERIAL DATA
S. PHOTO	SUPPLY PHOTO TRANSISTOR
S. TAB [L]	SAFETY TAB SW ON Ⓛ
S/P/N	SECAM/PAL/NTSC
SC IN	SERIAL CLOCK INPUT
SC OUT	SERIAL CLOCK OUTPUT
SCK SELECT	SERIAL CLOCK SELECT
SEL OUT [L]	SELECT OUTPUT (L)
SEL OUT [R]	SELECT OUTPUT (R)
SHUTTLE 1	SHUTTLE 1
SIF	SOUND INTERMEDIATE FREQUENCY
SLMUT [H]	INPUT SELECT MUTE Ⓗ
SLNID [+]	SOLENOID (+)
SLNID [–]	SOLENOID (–)
SLW TR. MM	SLOW TRACKING MONO MULTI
SLW TR. REF	SLOW TRACKING REFERENCE VOLTAGE
SNS. GND	SENSOR GND
SOFT [H]	SOFT TAPE PLAY Ⓗ
SOFT [H]/NORMAL	SOFT TAPE PLAY Ⓗ/NORMAL Ⓗ
SOLENOID ON [L]	SOLENOID ON Ⓛ
SP [H]	SP Ⓗ
SP/L/SLP	SP/LP
SSS [L]	SLOW/STILL/STOP
STEREO LED	STEREO LED
STEREO [H]	STEREO Ⓗ
STEREO [L]	STEREO Ⓛ
STOP. PO	STOP POSITION
STOP/5V	STOP POSITION/5V
STOP1/TAPE SEL	STOP1 POSITION/TAPE SELECT
STOP1/PAL:ST	STOP1 POSITION/PAL
STOP2. PO	STOP 2 POSITION
STOP2/S-TAB	STOP 2 POSITION/SAFETY TAB SW
STREO [H]	STEREO Ⓗ
SUB BIAS	SUB BIAS
SUB. SW	SUB SW
SVHS CAS [L]	S-VHS CASSETTE Ⓛ
SW. 5. DET	SW 5V DETECT
SYNC [L]	SYNC Ⓛ
SYSCON 5V	SYSTEM CONTROL 5V
SYSTEM	SYSTEM SW
T-PHOTO	TAKE-UP PHOTO TRANSISTOR
T-RL. PLS	TAKE-UP REEL PULSE
T. BUSCLK	TIMER BUS CLOCK
T. BUSLSN	TIMER BUS LISTEN
T. BUSTLK	TIMER BUS TALK
T. END [L]	TAPE END Ⓛ
T. PHOTO	TAKE-UP PHOTO TRANSISTOR
TAPE END [L]	TAPE END Ⓛ
TAPE END [L]/CAM	TAPE END Ⓛ/CAMERA PAUSE
TEST	TEST MODE
TPZ	TRAPEZOIDAL WAVE CIRCUIT
TRIC [L]	TRIC PLAY Ⓛ
TRICK [L]	TRIC PLAY Ⓛ
TRK. ENV	AUTO TRACKING ENVELOPE DETECT
TU. AUDIO	TUNER AUDIO
TU. GND	TUNER GND
TU. V. IN	TUNER VIDEO SIGNAL INPUT
TU. VIDEO	TUNER VIDEO
TUN NOR IN	TUNER NORMAL INPUT
TUN R	TUNER AUDIO (R)
TUN. AUDIO IN	TUNER AUDIO INPUT
TUNER 12V	TUNER 12V
TUNER L	TUNER AUDIO (L)
TUNER V IN	TUNER VIDEO SIGNAL INPUT
TUNER [L]	TUNER AUDIO (L)
TUNER [N]	TUNER AUDIO (NORMAL)
TUNER [R]	TUNER AUDIO (R)
TUNER. 12	TUNER 12V
TUOFF [H]	TUNER OFF Ⓗ
TV. AUDIO	TV AUDIO
TV/VTR	TV/VTR
TXTON [L]	TEXT ON Ⓛ
U. REG45V	UNREGULATOR 45V
UNREG	UNREGULATOR
UNREG19V	UNREGULATOR 19V
V. REF	REFERENCE VOLTAGE
V. EE [H]	VIDEO EE Ⓗ
V. EE [L]	VIDEO EE Ⓛ
VCO REF	REFERENCE OSCILLATER
VD. IN	VIDEO SIGNAL INPUT
VD. OUT	VIDEO SIGNAL OUTPUT
VIDEO EE [L]	VIDEO EE Ⓛ
VIDEO IN	VIDEO SIGNAL INPUT
VIDEO OUT	VIDEO SIGNAL OUTPUT
VM	MOTOR VOLTAGE
VM DOWN [L]	MOTOR VOLTAGE DOWN Ⓛ
VSS	VERTICAL SYNC SIGNAL
VTR [H]	VTR Ⓗ
VTR. 12V	VTR 12V
X IN	OSCILLATOR INPUT
X OUT	OSCILLATOR OUTPUT

For your safety please read the following text carefully

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 5 amp fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amps and that it is approved by ASTA or BSI to BS 1362.

Check for the ASTA mark or the BSI mark on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.

THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt please consult a qualified electrician.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral

Brown: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstance should either of these wires be connected to the earth terminal of the three pin plug, marked with the letter E or the Earth Symbol ⏚.

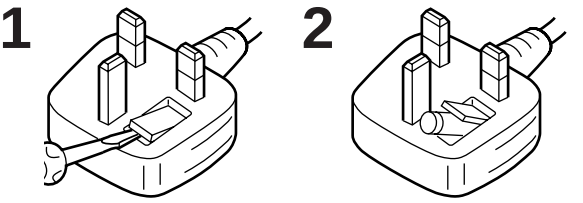
How to replace the Fuse

- There are two types of the AC Mains Lead assembly: **A** and **B** as shown below.

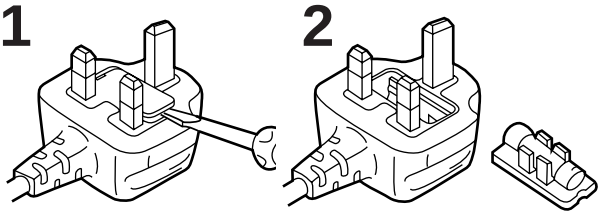
1 Open the fuse compartment with a screwdriver.

2 Replace the fuse and fuse cover.

TYPE A



TYPE B



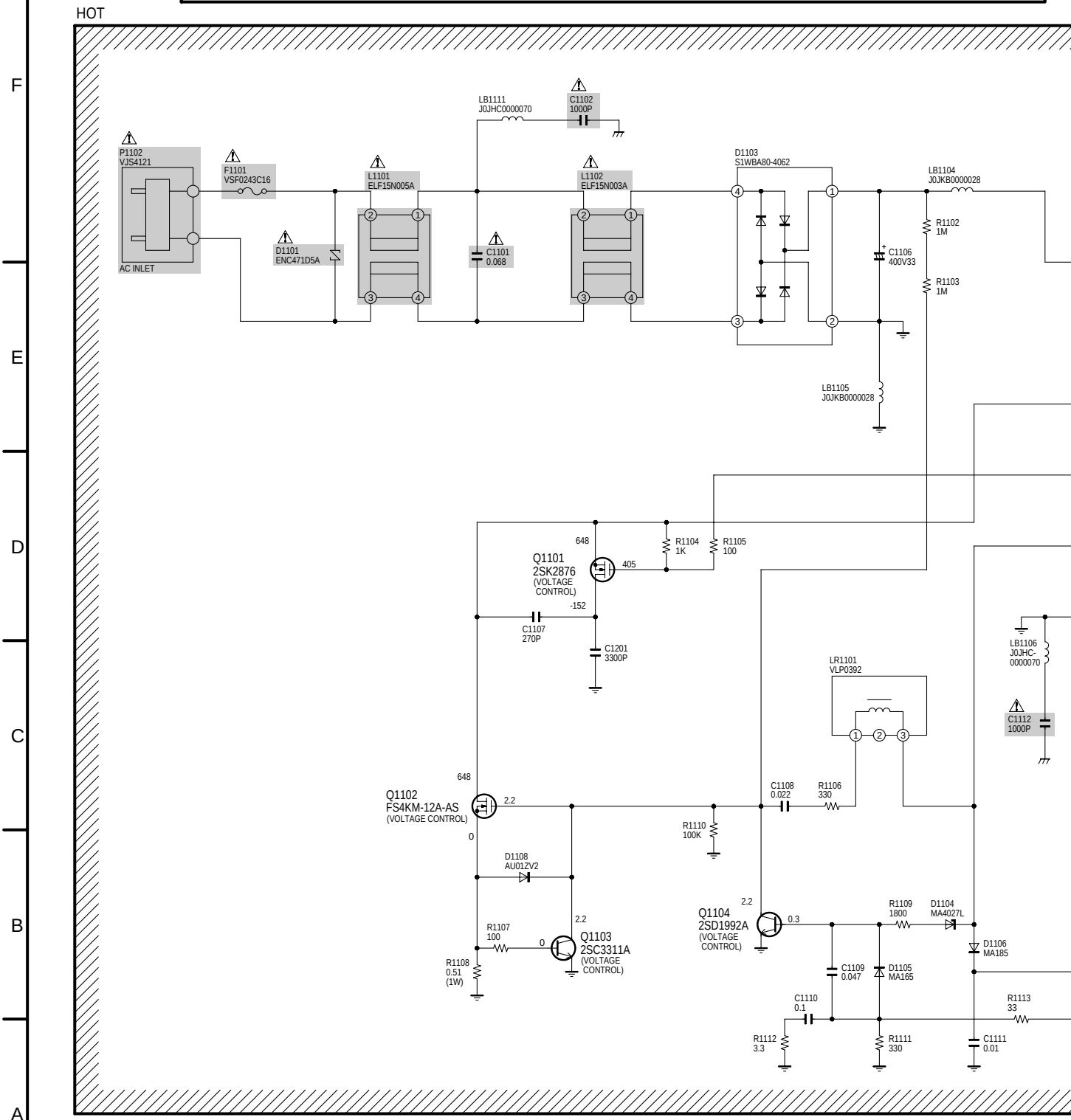
8 SCHEMATIC DIAGRAMS

8.1. POWER TRANSFORMER SECTION IN MAIN SCHEMATIC DIAGRAM

CAUTION

THE STRIPED FRAME INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.

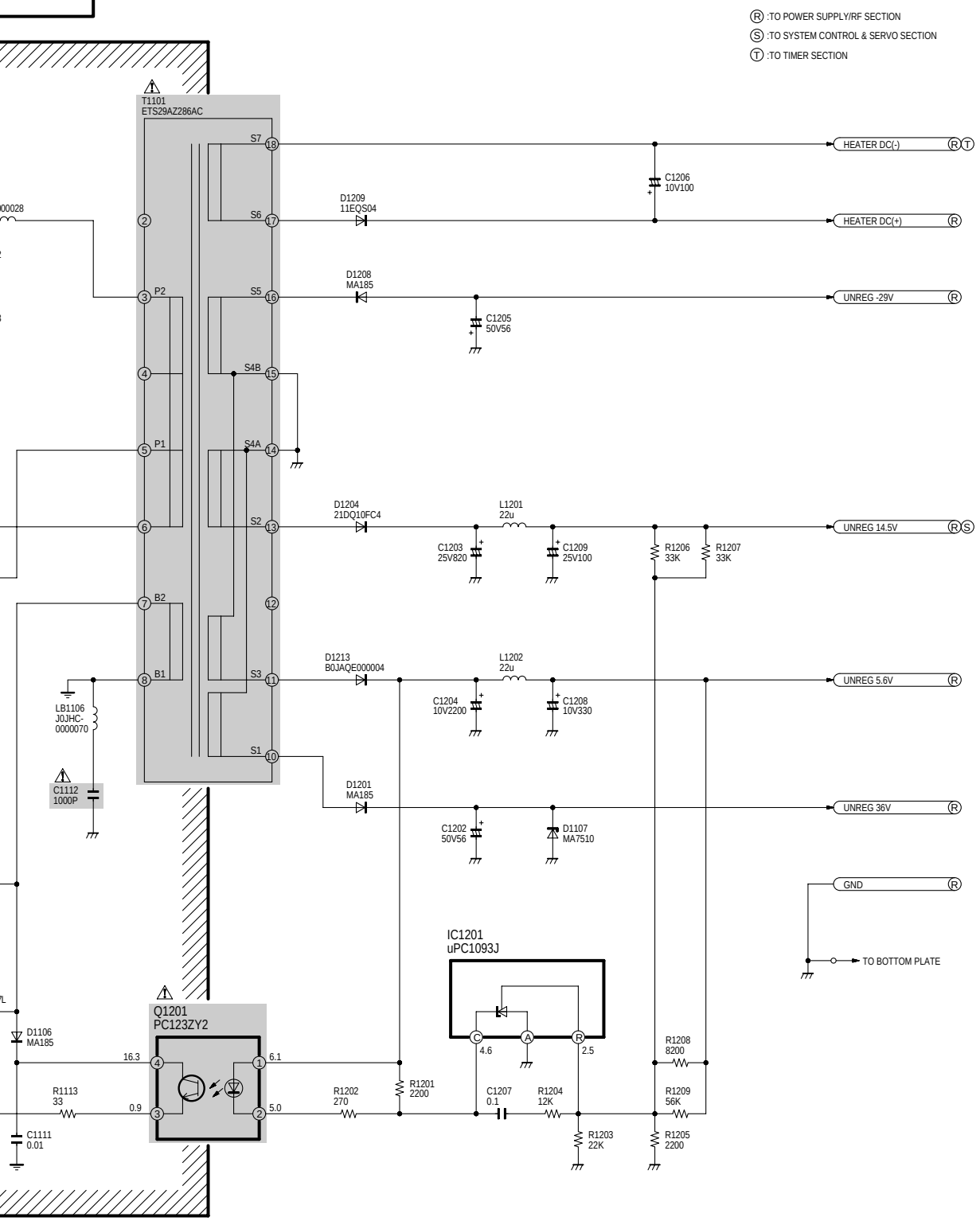
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.



IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SAME TYPE.

NOTE1:WHEN MEASURE THE VOLTAGE OR WAVEFORM ON THE POWER TRANSFORMER CIRCUIT,SET THE GND TERMINAL OF MEASURING POINT AS FOLLOWS.
PRIMARY SIDE..... ⏚
SECONDARY SIDE... ⏚

NOTE2:THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS SHOWN THE VOLTAGE WHEN INPUT AC IS 240V.



TRANSFORMER
LOWS.

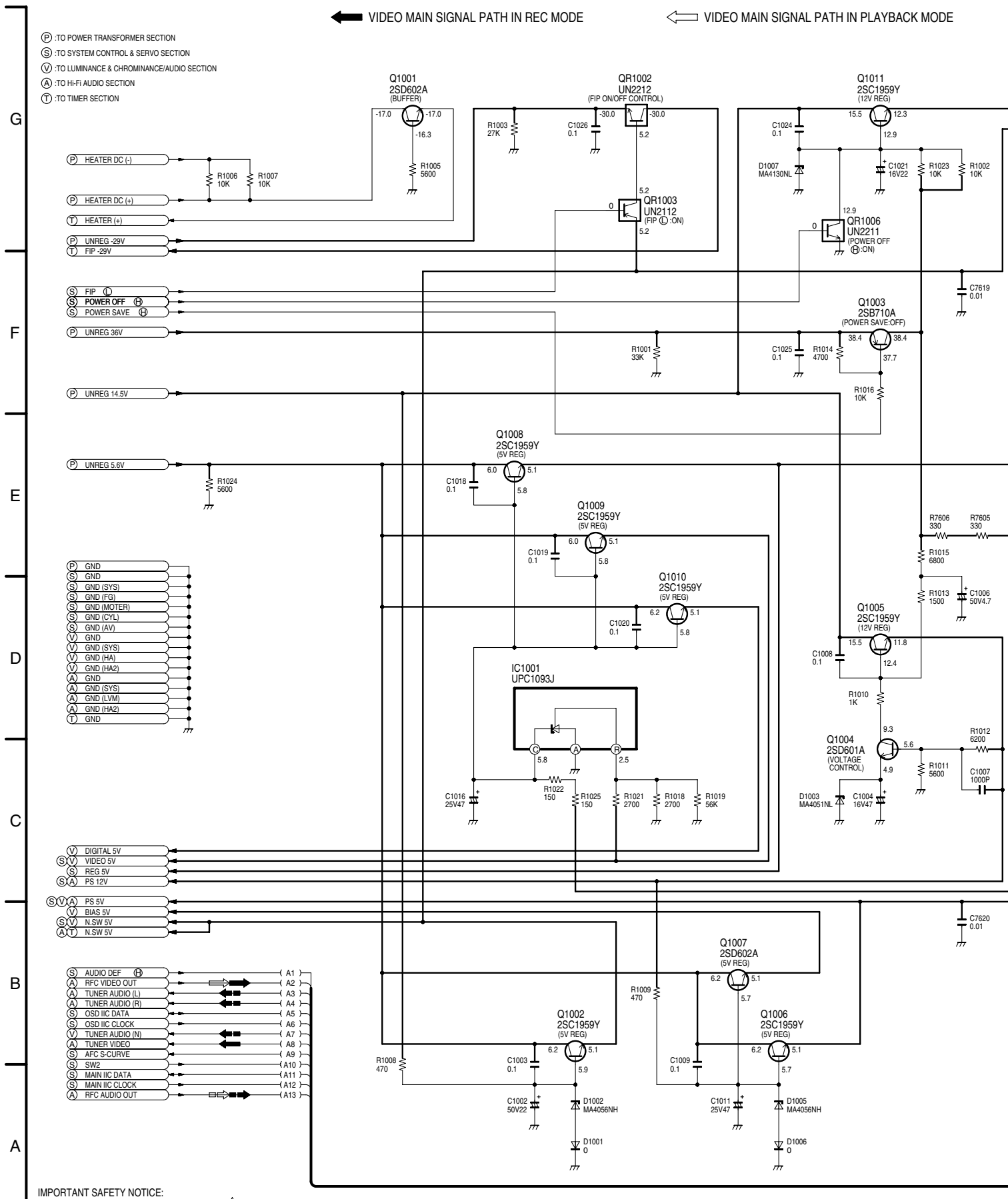
OLTAGE WHEN

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.
NOTE:THE MEASURMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NV-HS830EG/B/EC/EE
POWER TRANSFORMER
SECTION SCHEMATIC DIAGRAM

6 7 8 9 10

8.2. POWER SUPPLY/ RF SECTION IN MAIN SCHEMATIC DIAGRAM



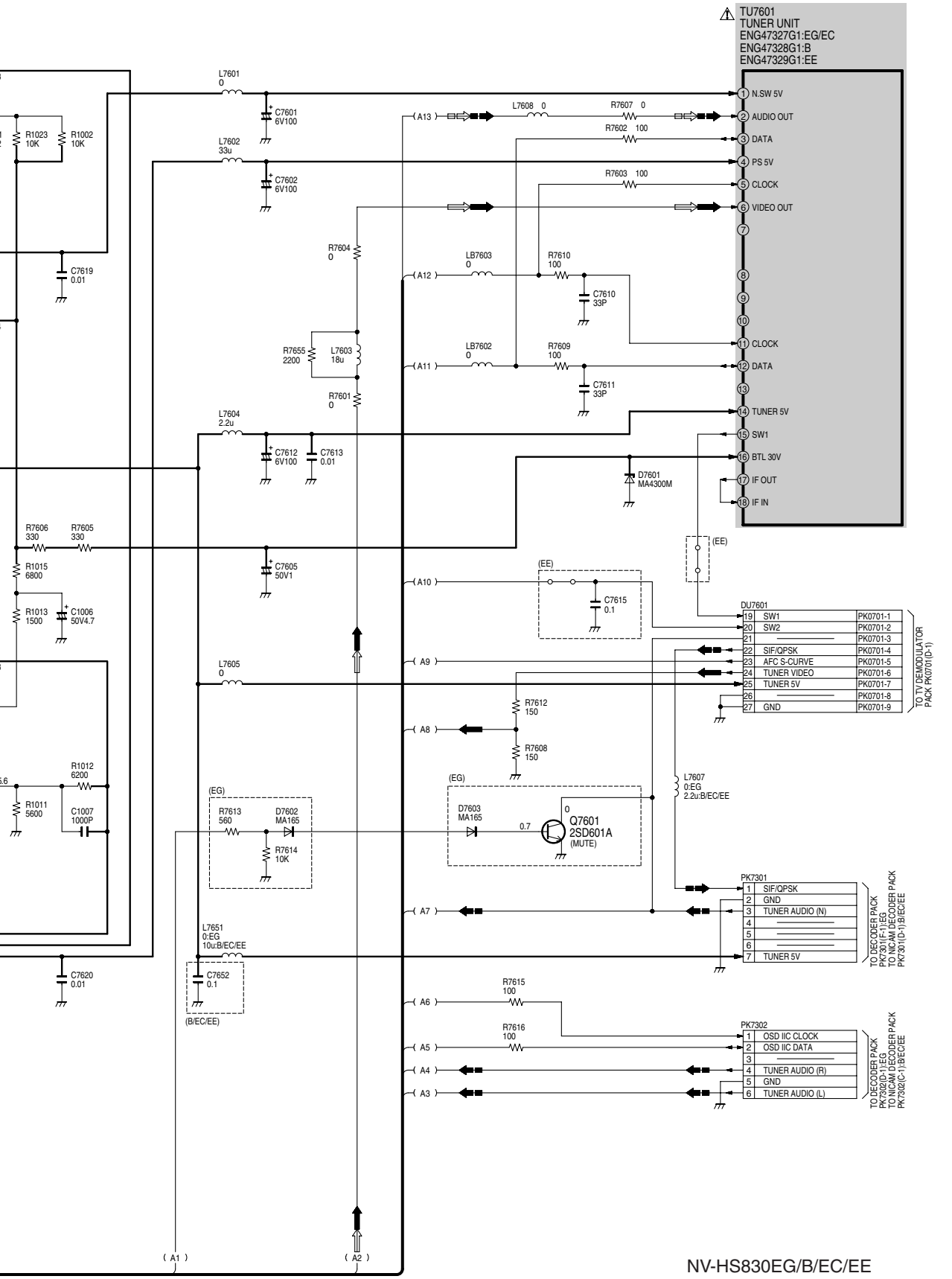
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SAME TYPE.

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

CK MODE

AUDIO MAIN SIGNAL PATH IN REC MODE

AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE



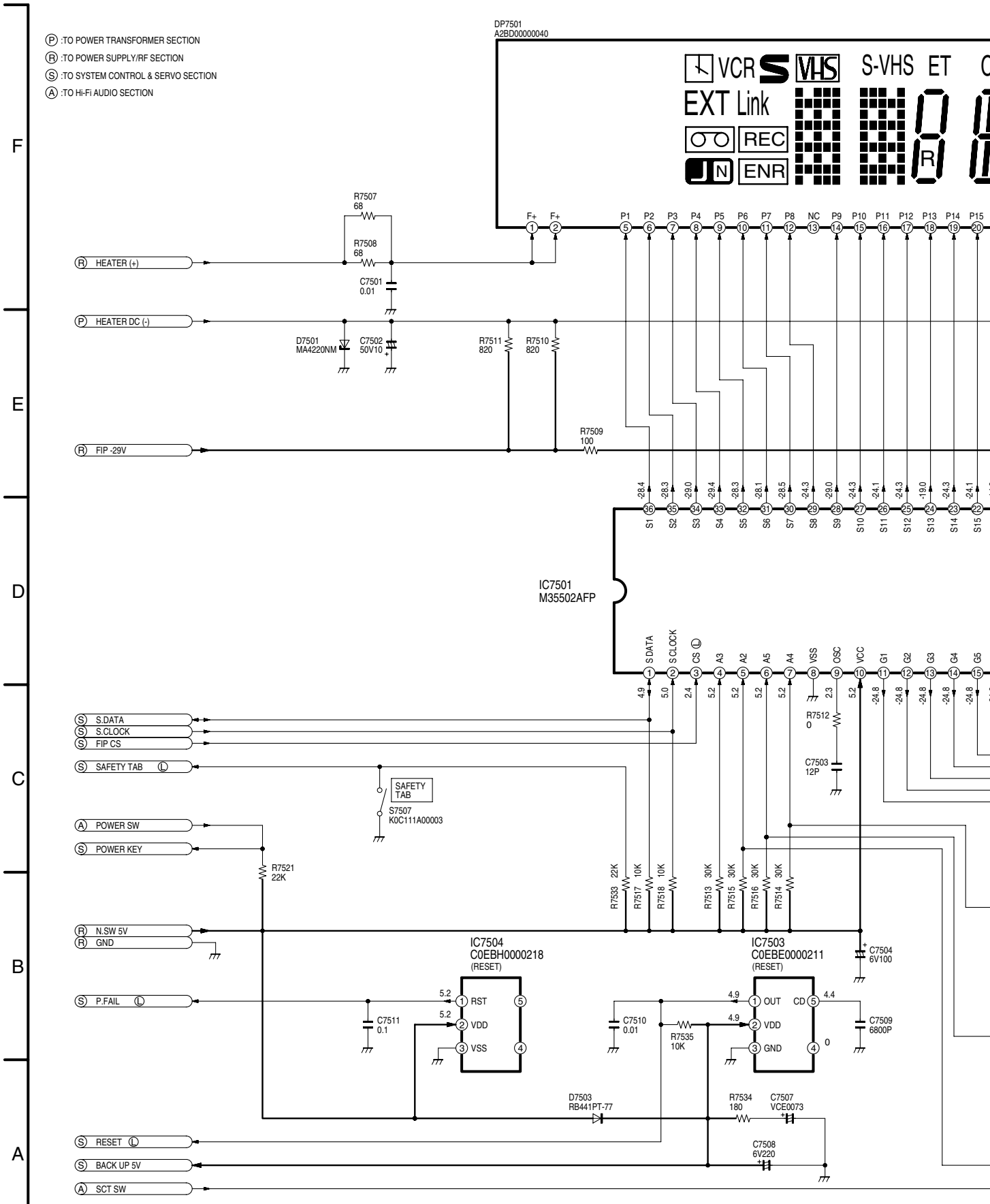
P MODE.

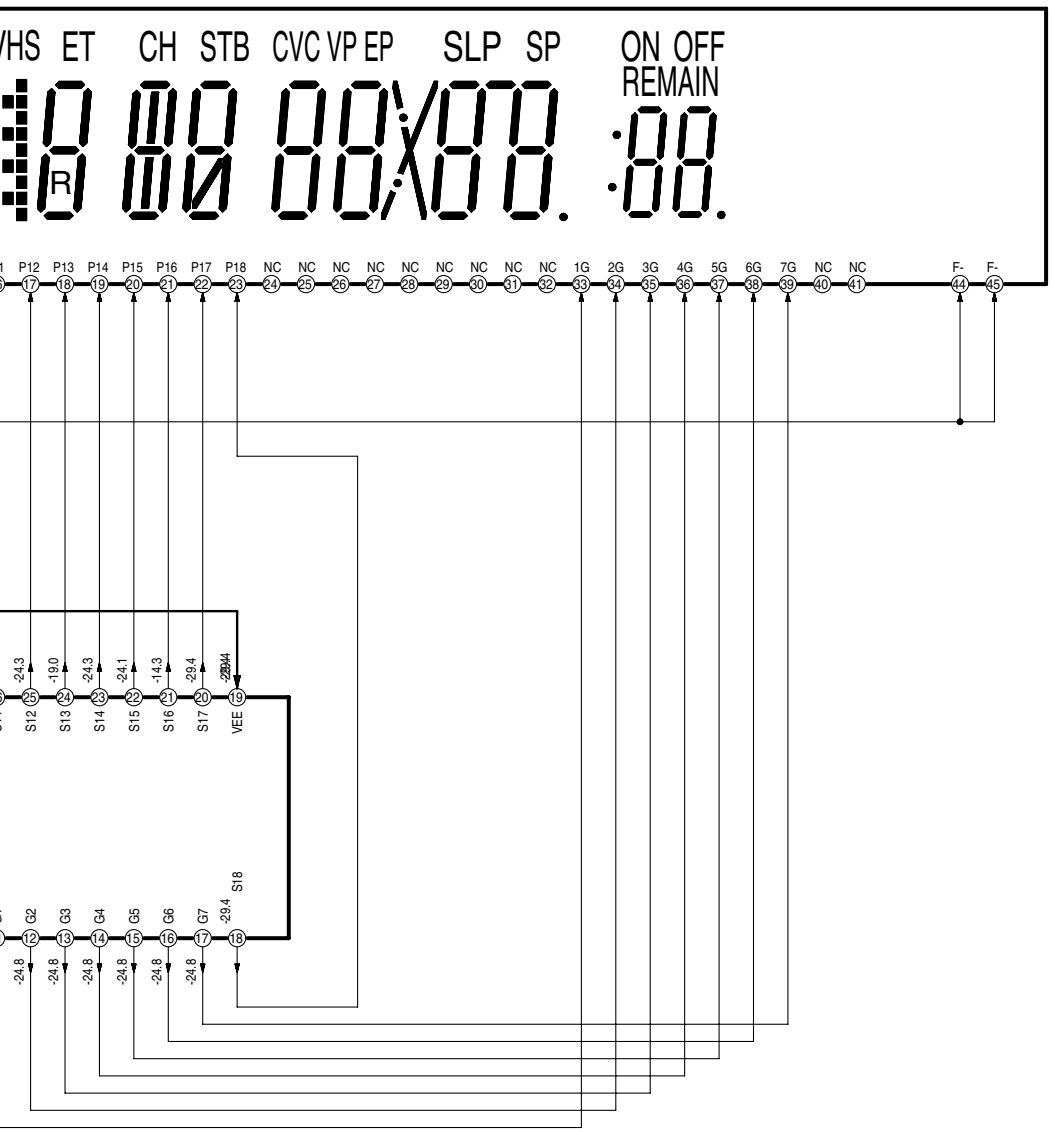
NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

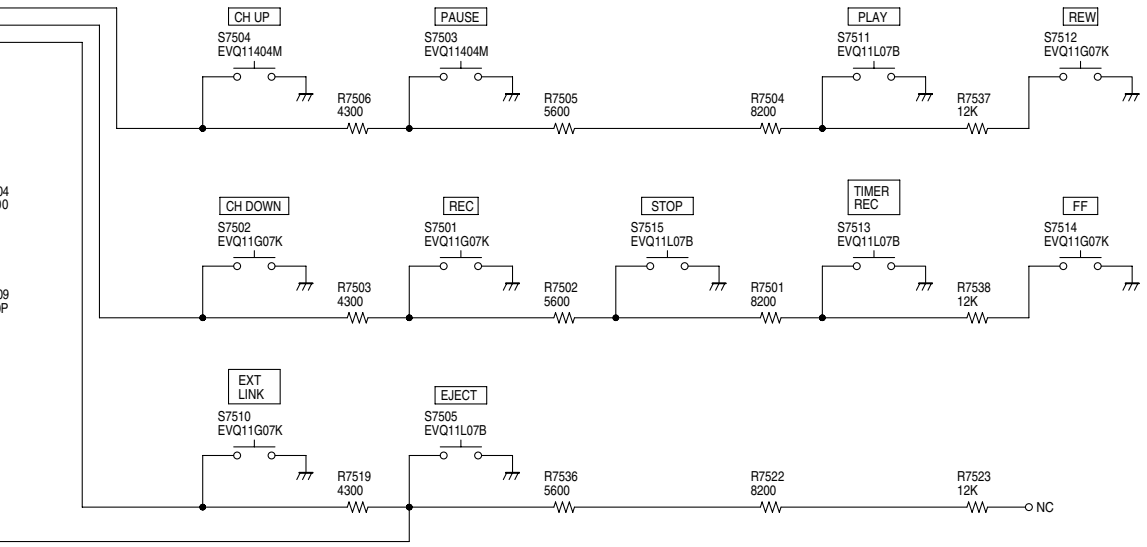
NV-HS830EG/B/EC/EE
POWER SUPPLY/RF SECTION
SCHEMATIC DIAGRAM

6 | 7 | 8 | 9 | 10

8.3. TIMER SECTION IN MAIN SCHEMATIC DIAGRAM




/HS ET CH STB CVC VP EP SLP SP
ON OFF
REMAIN
P12 P13 P14 P15 P16 P17 P18 NC NC NC NC NC NC NC NC NC 1G 2G 3G 4G 5G 6G 7G NC NC F- F-
S12 S13 S14 S15 S16 S17 VEE
G2 G3 G4 G5 G6 G7 S18

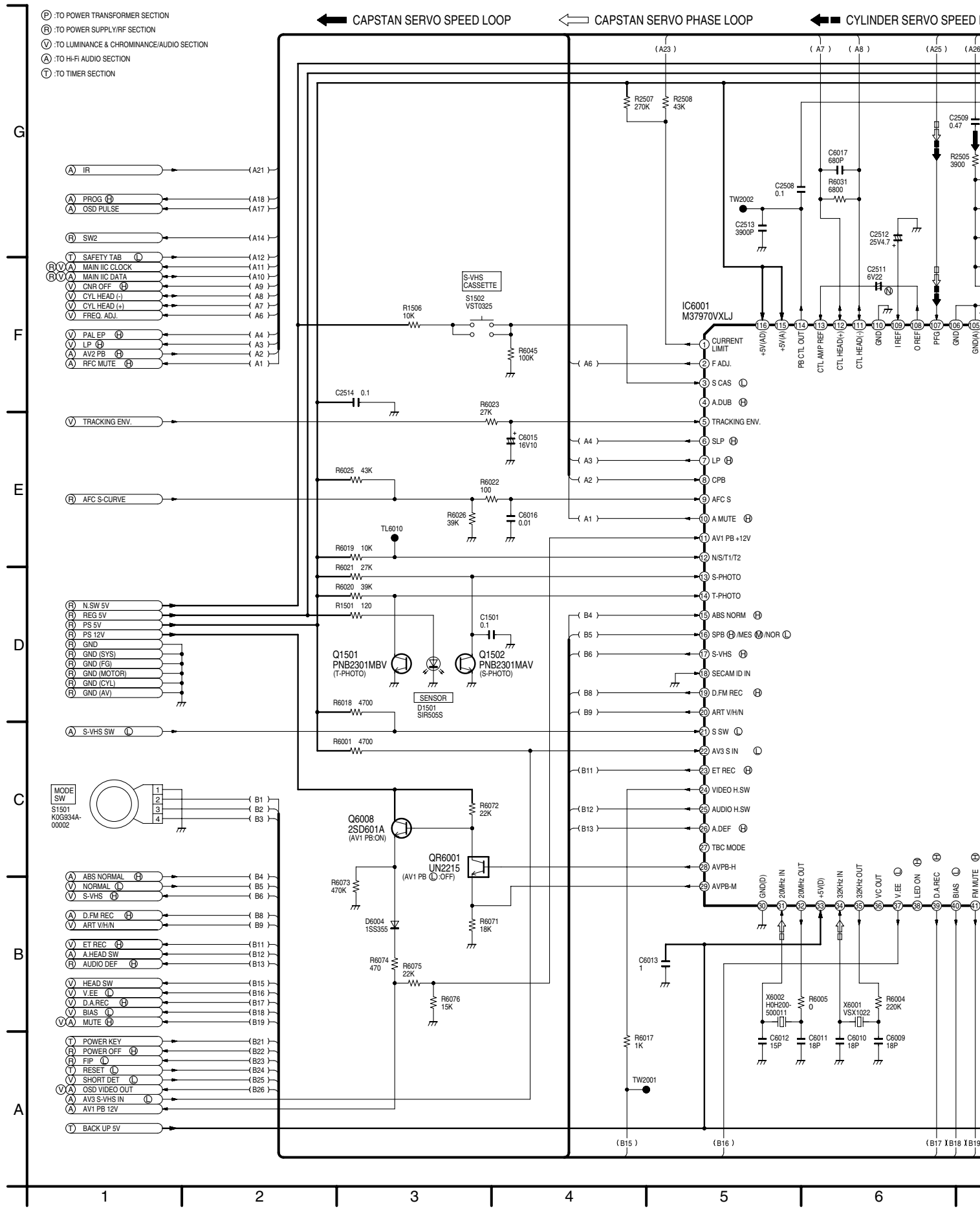


N ON THIS SCHEMATIC DIAGRAM FOR
ART,PLESE REFER TO PARTS LIST.

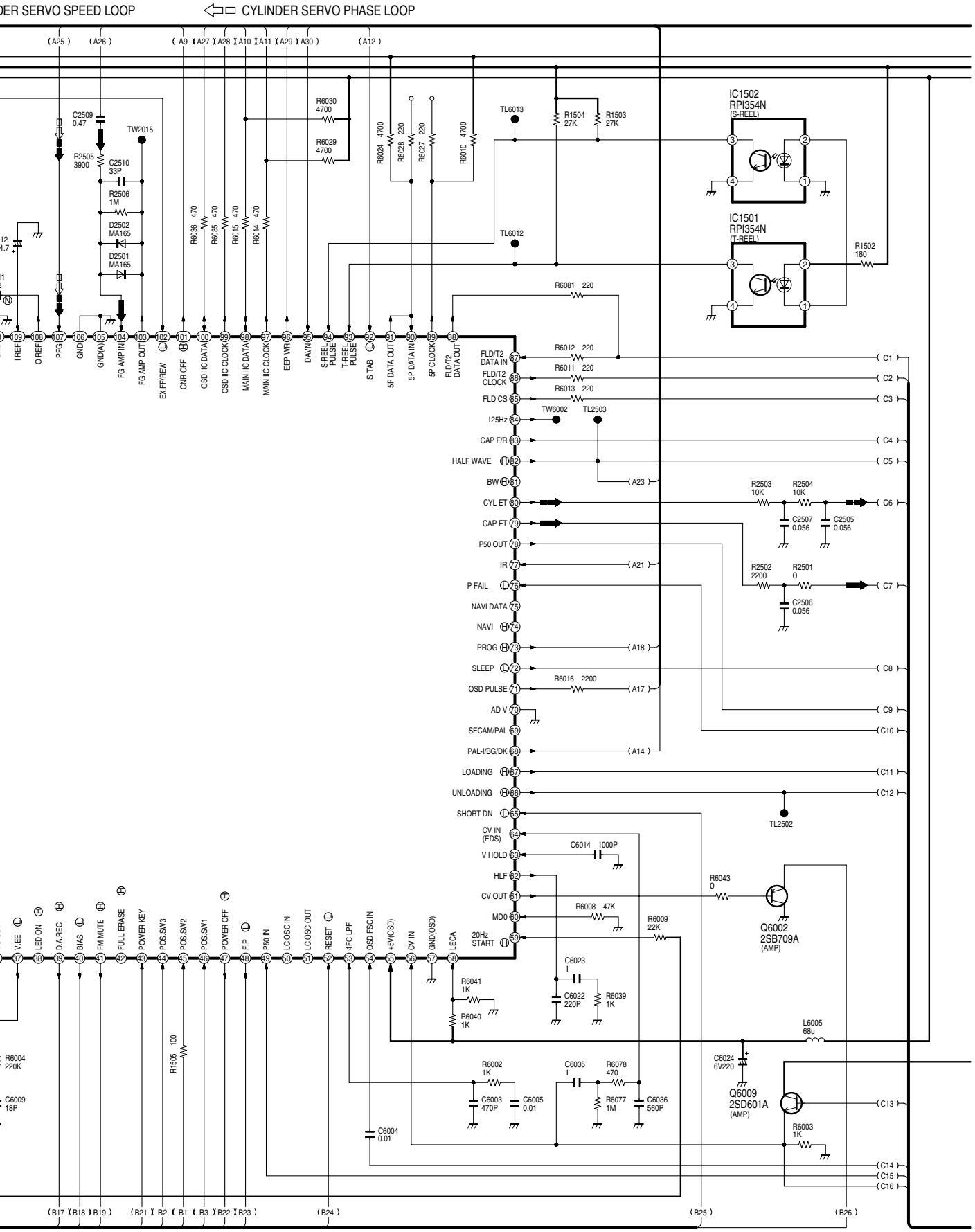
NV-HS830EG/B/EC/EE
TIMER SECTION SCHEMATIC DIAGRAM

6 7 8 9

8.4. SYSTEM CONTROL & SERVO SECTION IN MAIN SCHEMATIC DIAGRAM

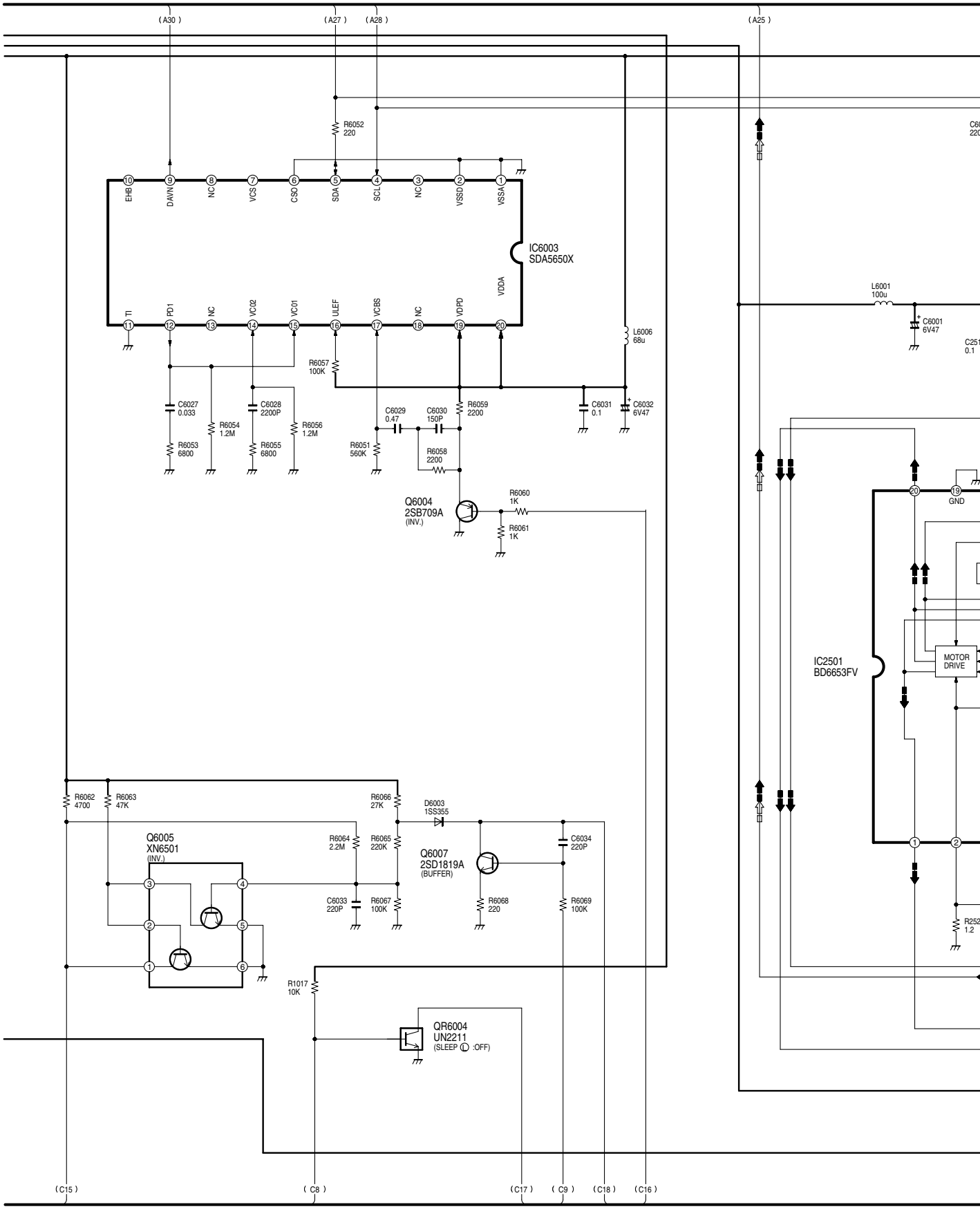


AM



NV-HS830EG/B/EC/EE SYSTEM CONTROL & SERVO SECTION SCHEMATIC DIAGRAM

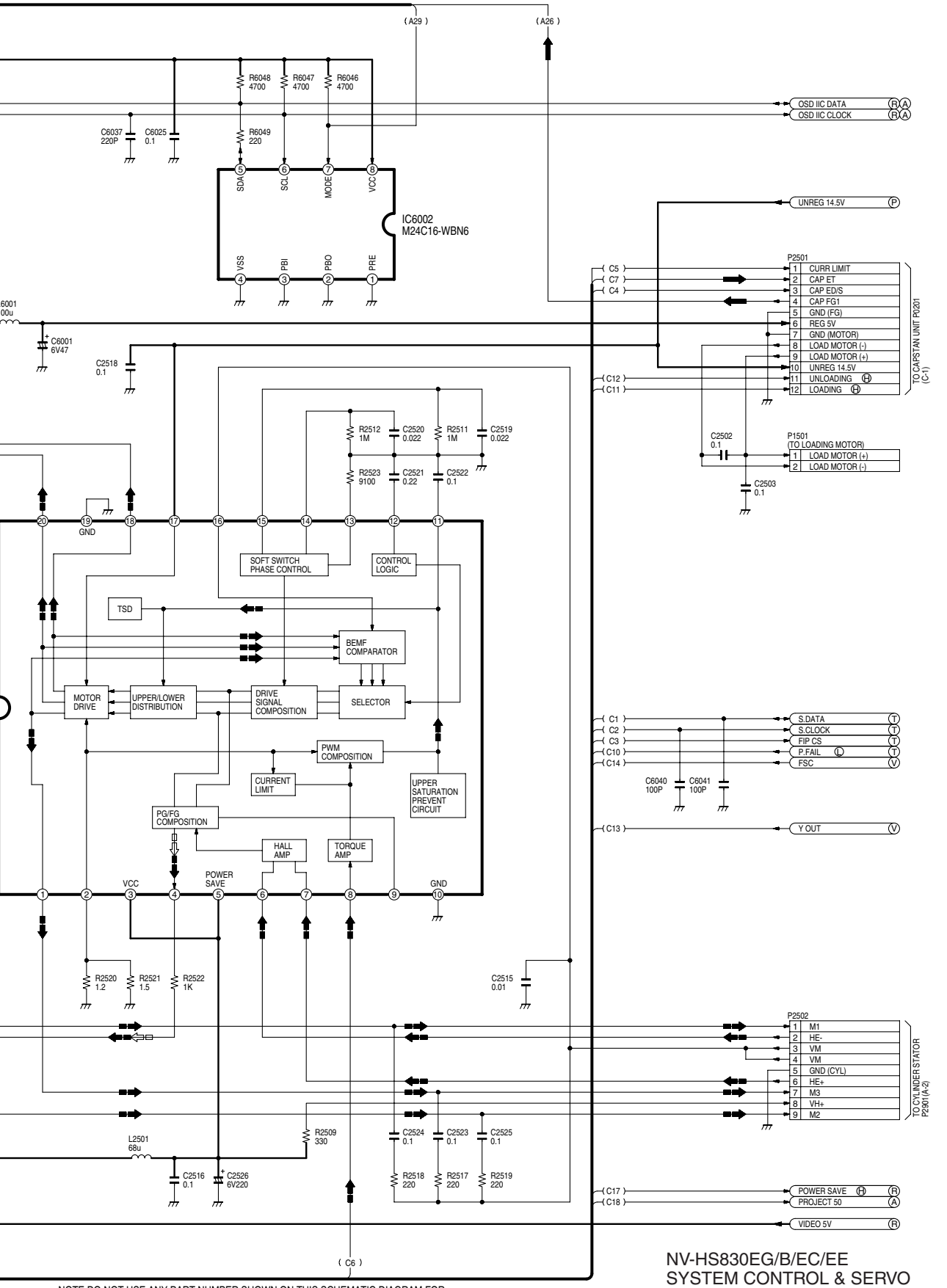
6 | 7 | 8 | 9 | 10 | 11 | 12



NV-HS830EG/B/EC/EE SYSTEM CONTROL & SERVO SECTION SCHEMATIC DIAGRAM

NOTE:DO N ORDE

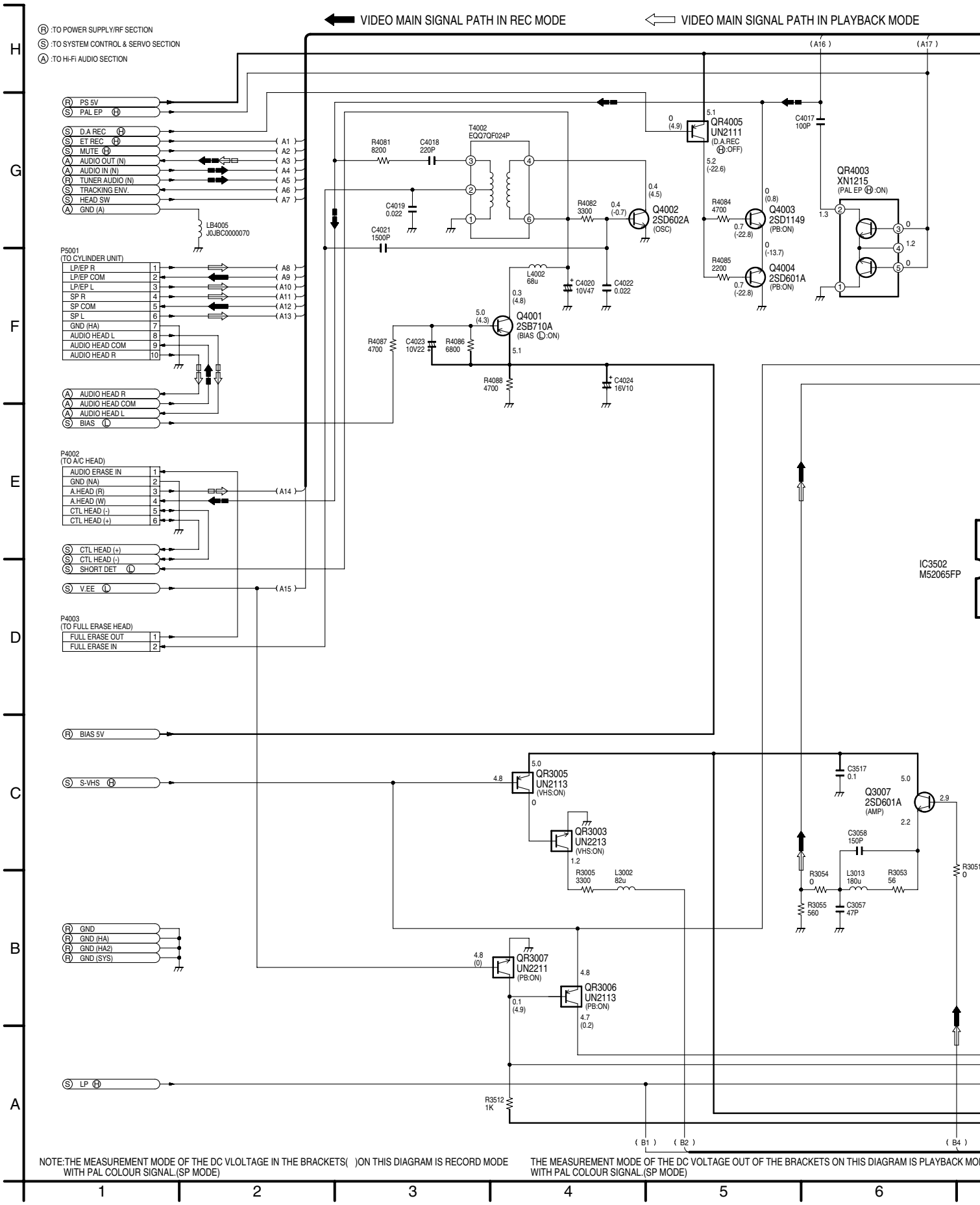
12 13 14 15 16 17



NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

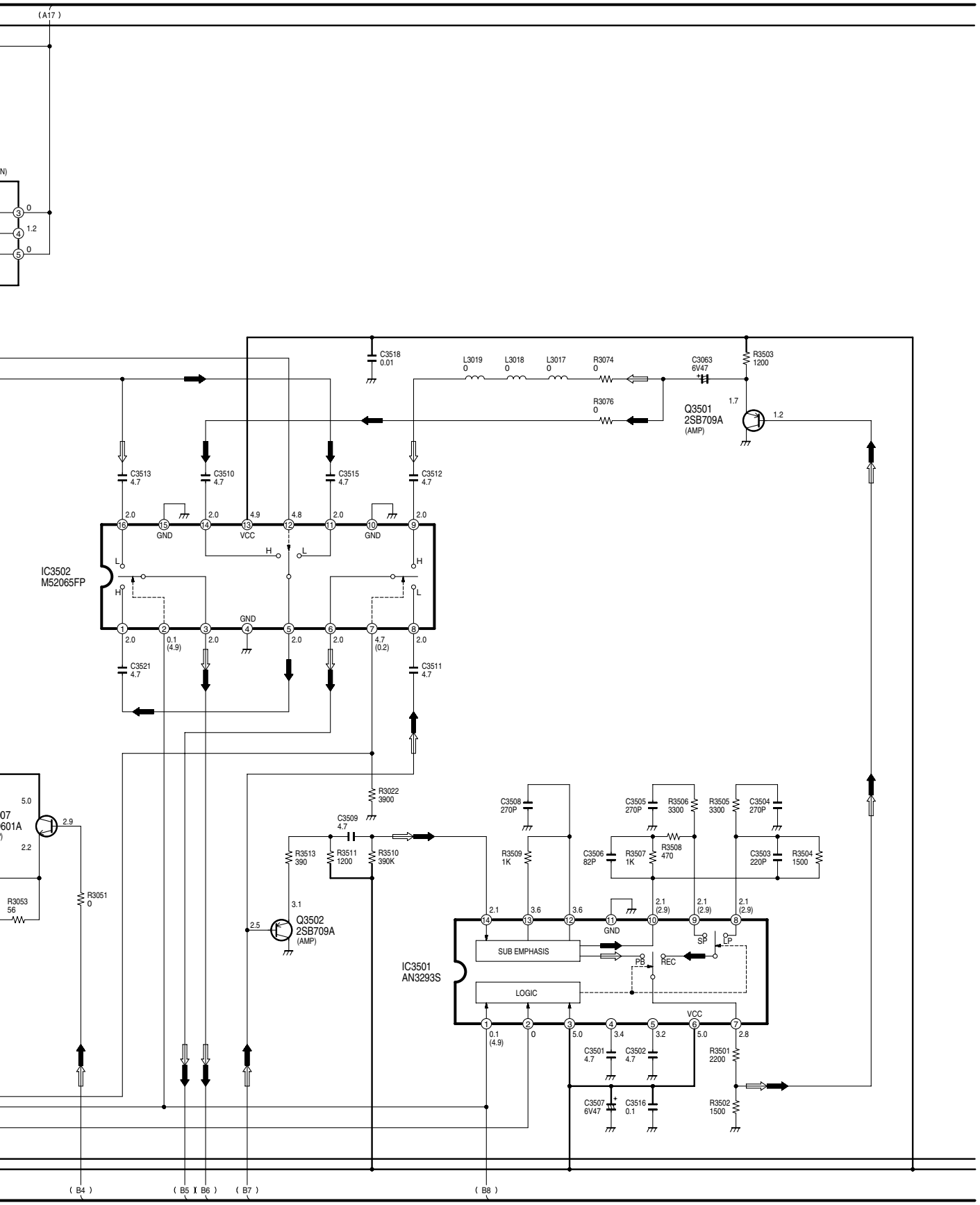
NV-HS830EG/B/EC/EE
SYSTEM CONTROL & SERVO
SECTION SCHEMATIC DIAGRAM

8.5. LUMINANCE & CHROMINANCE/ AUDIO SECTION IN MAIN SCHEMATIC DIAGR



C DIAGRAM

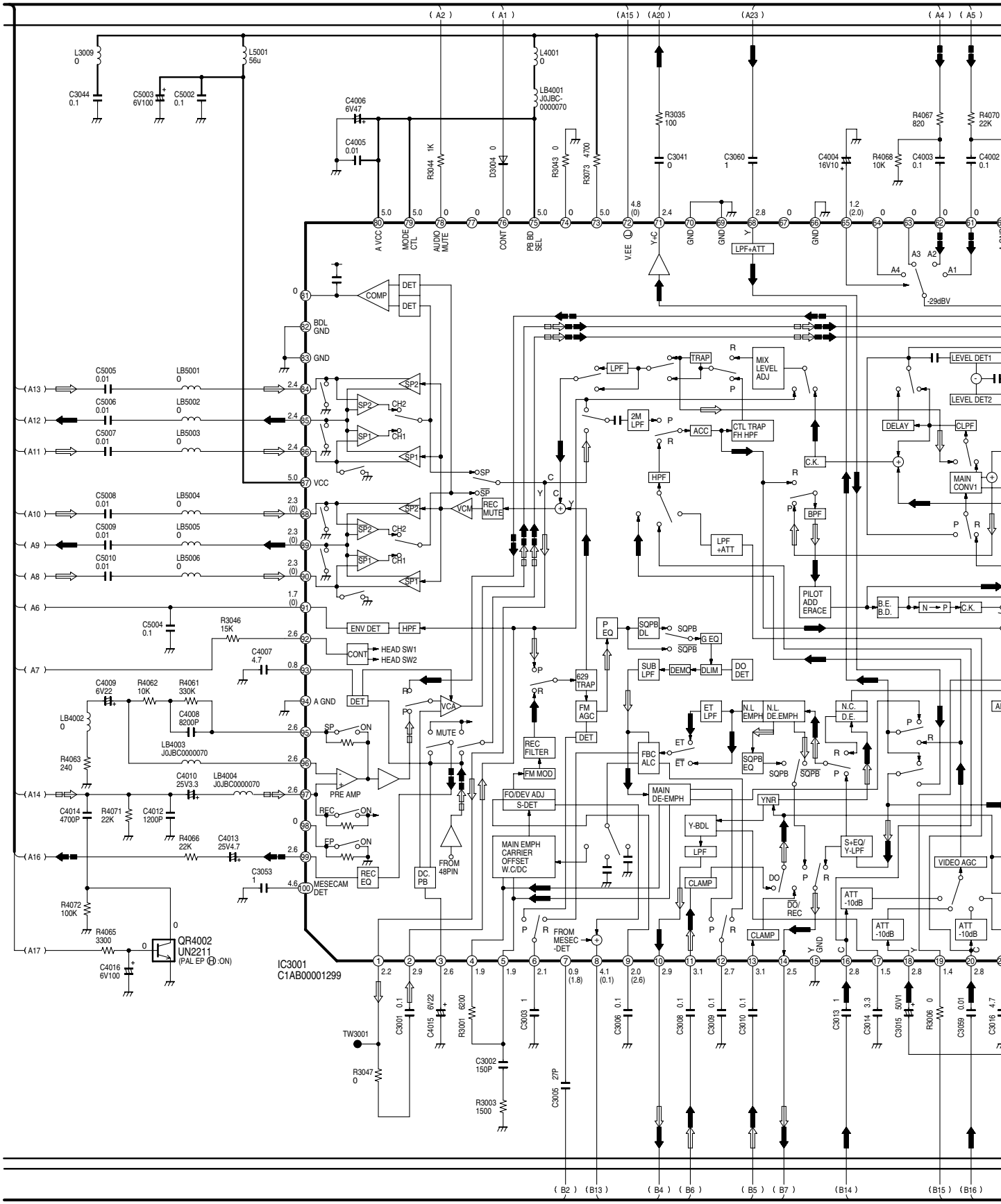
K MODE ◀■ AUDIO MAIN SIGNAL PATH IN REC MODE ⇦□ AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE



GRAM IS PLAYBACK MODE

NV-HS830EG/B/EC/EE LUMINANCE & CHROMINANCE/AUDIO SECTION SCHEMATIC DIAGRAM

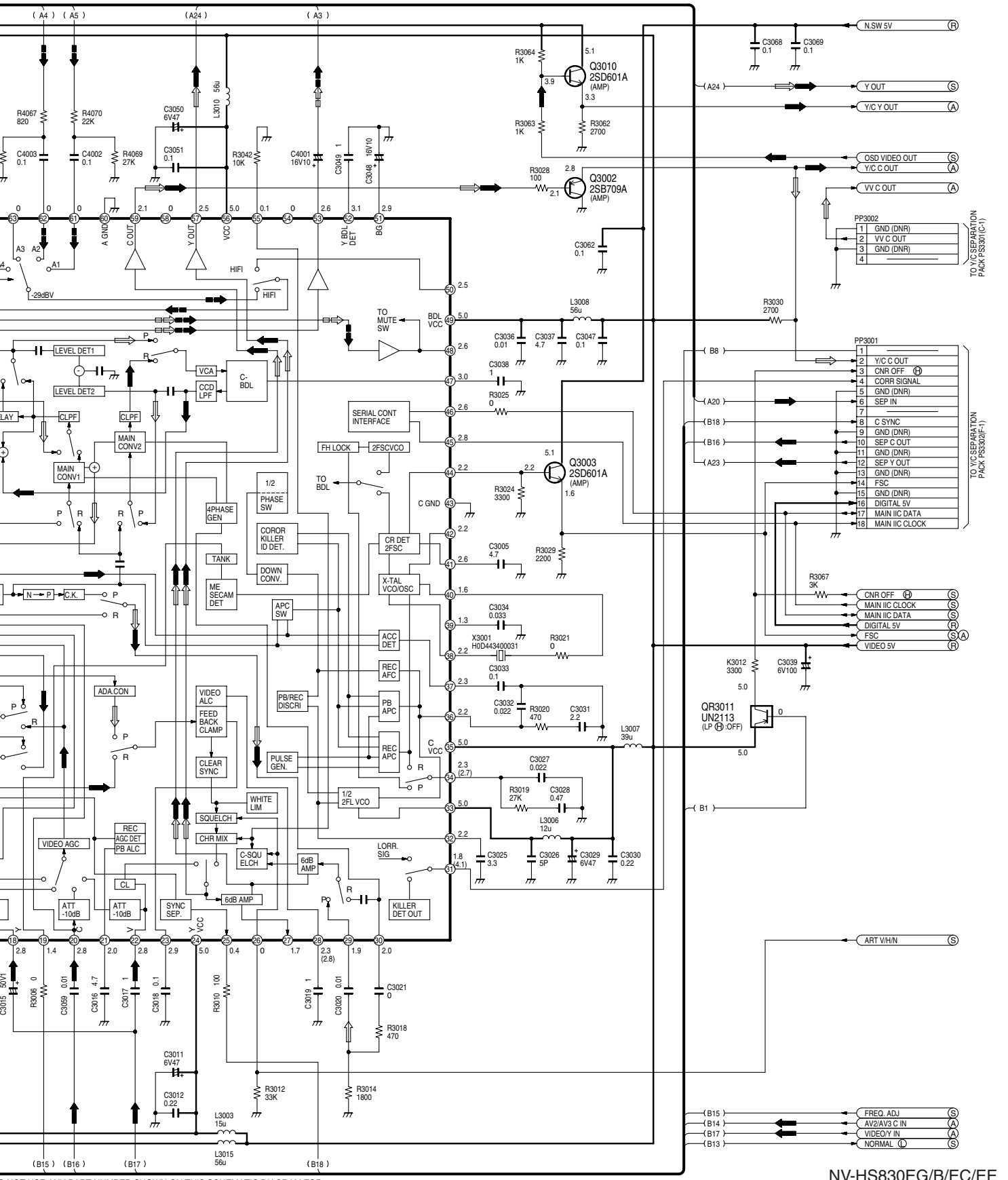
6 | 7 | 8 | 9 | 10 | 11



NV-HS830EG/B/EC/EE LUMINANCE & CHROMINANCE/AUDIO SECTION SCHEMATIC DIAGRAM

NOTE:DO NOT USE ANY PART NU
ORDERING.WHEN YOU OR

12 | 13 | 14 | 15 | 16 | 17



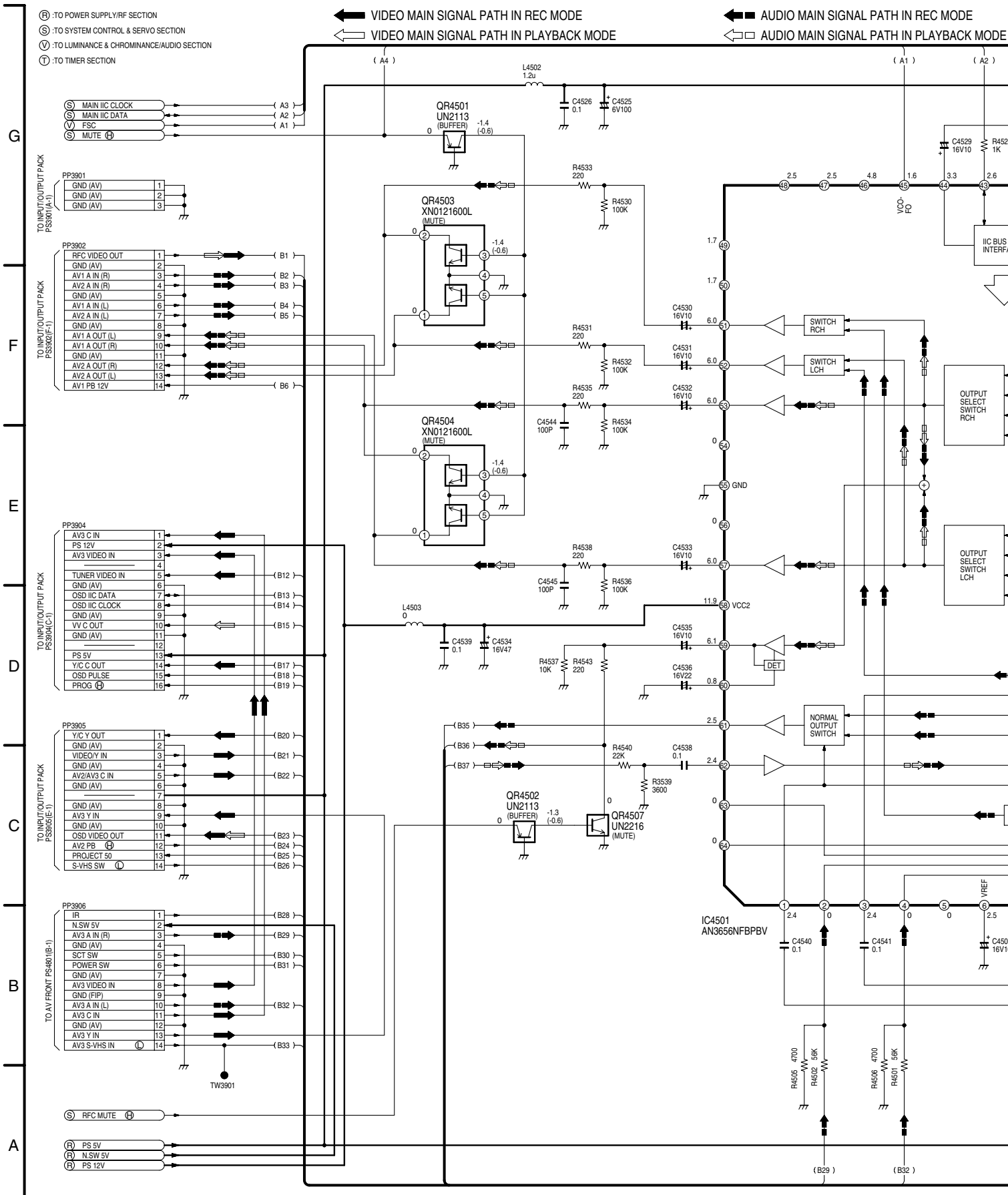
NV-HS830EG/B/EC/EE

LUMINANCE & CHROMINANCE/AUDIO SECTION SCHEMATIC DIAGRAM

O NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR RDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

18	19	20	21	22	23

8.6. Hi-Fi AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM

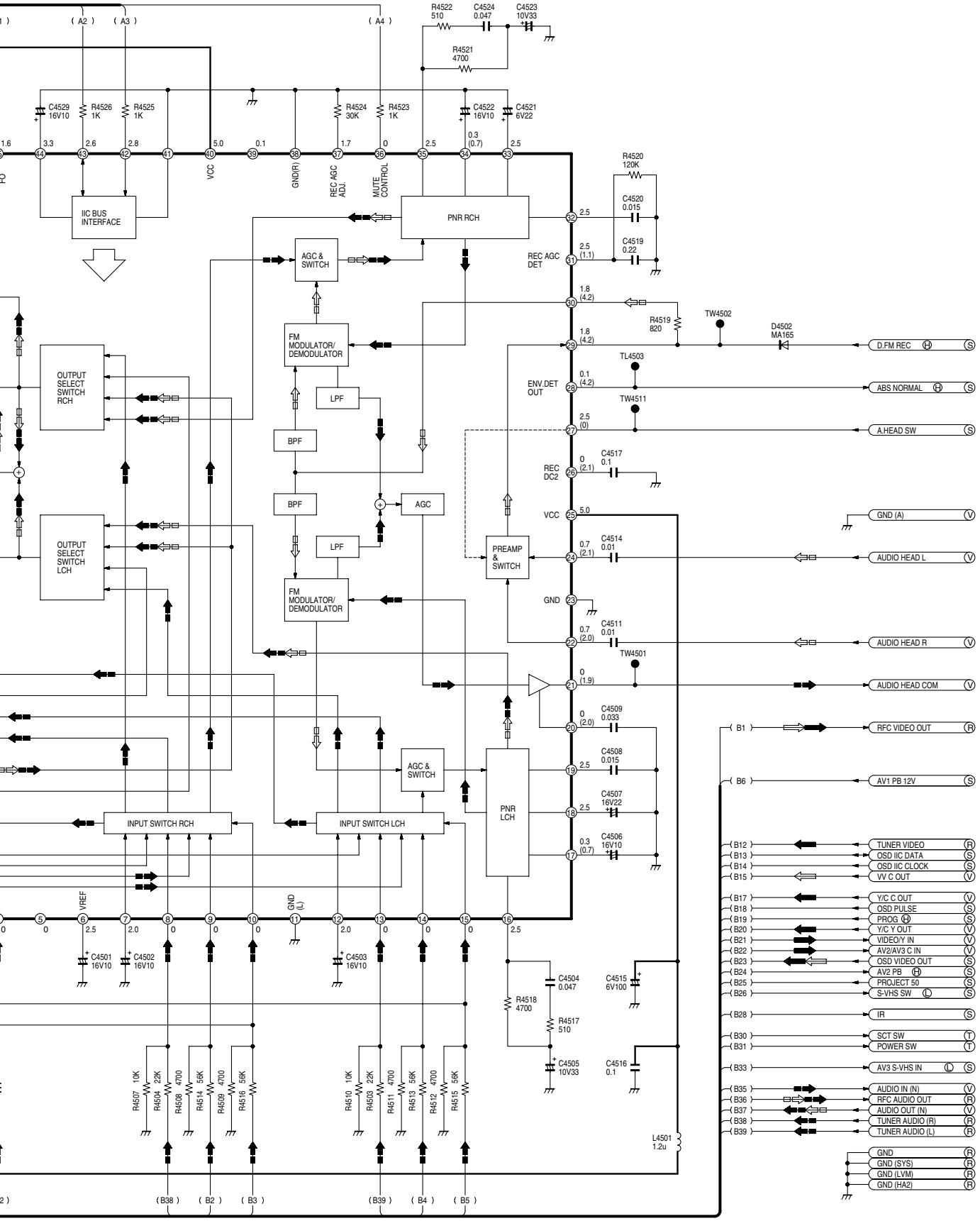


NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.(SP MODE)

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYB WITH PAL COLOUR SIGNAL.(SP MODE)

N REC MODE

N PLAYBACK MODE



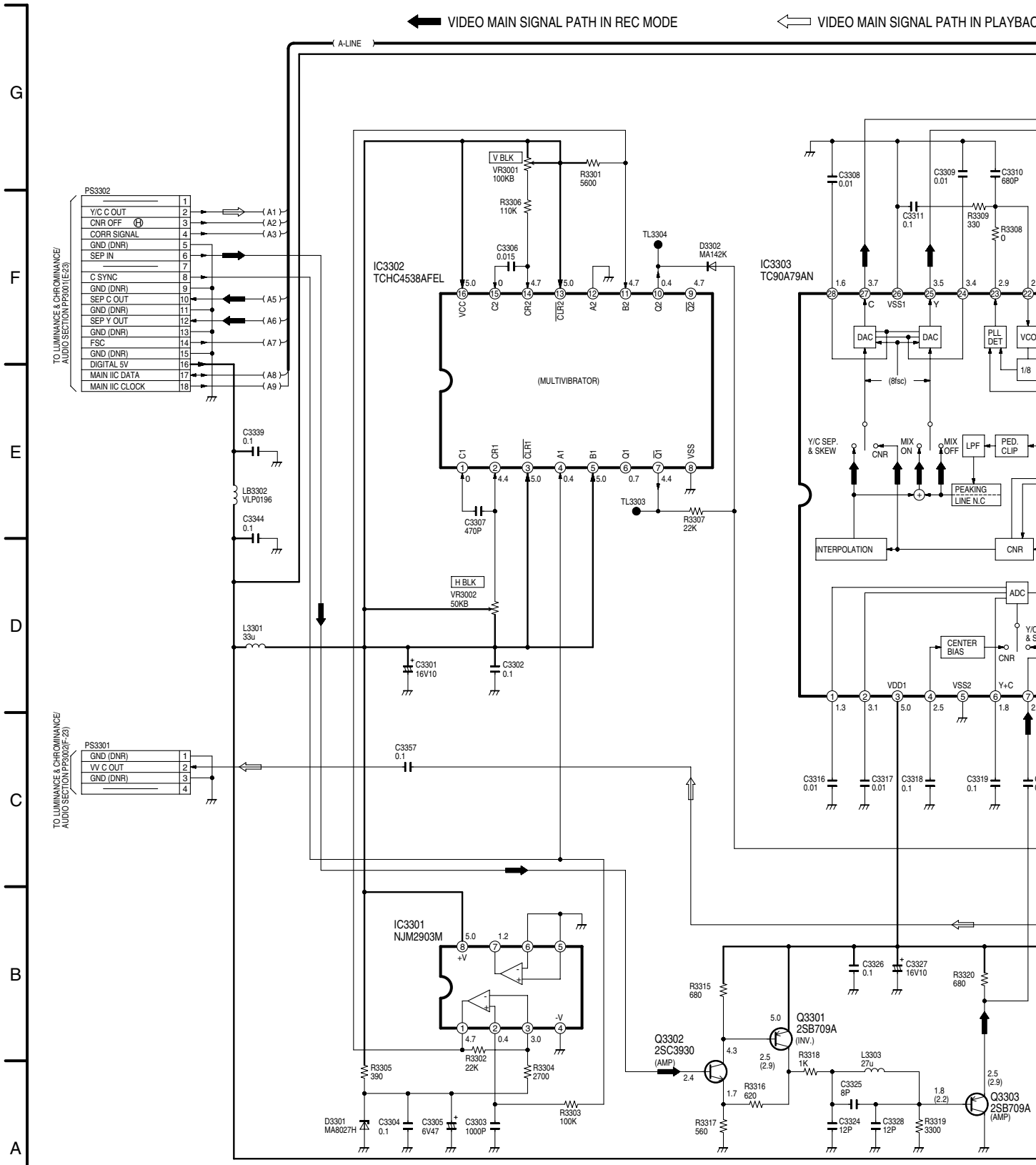
THIS DIAGRAM IS PLAYBACK MODE

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
Hi-Fi AUDIO SECTION SCHEMATIC DIAGRAM

6 | 7 | 8 | 9 | 10 | 11

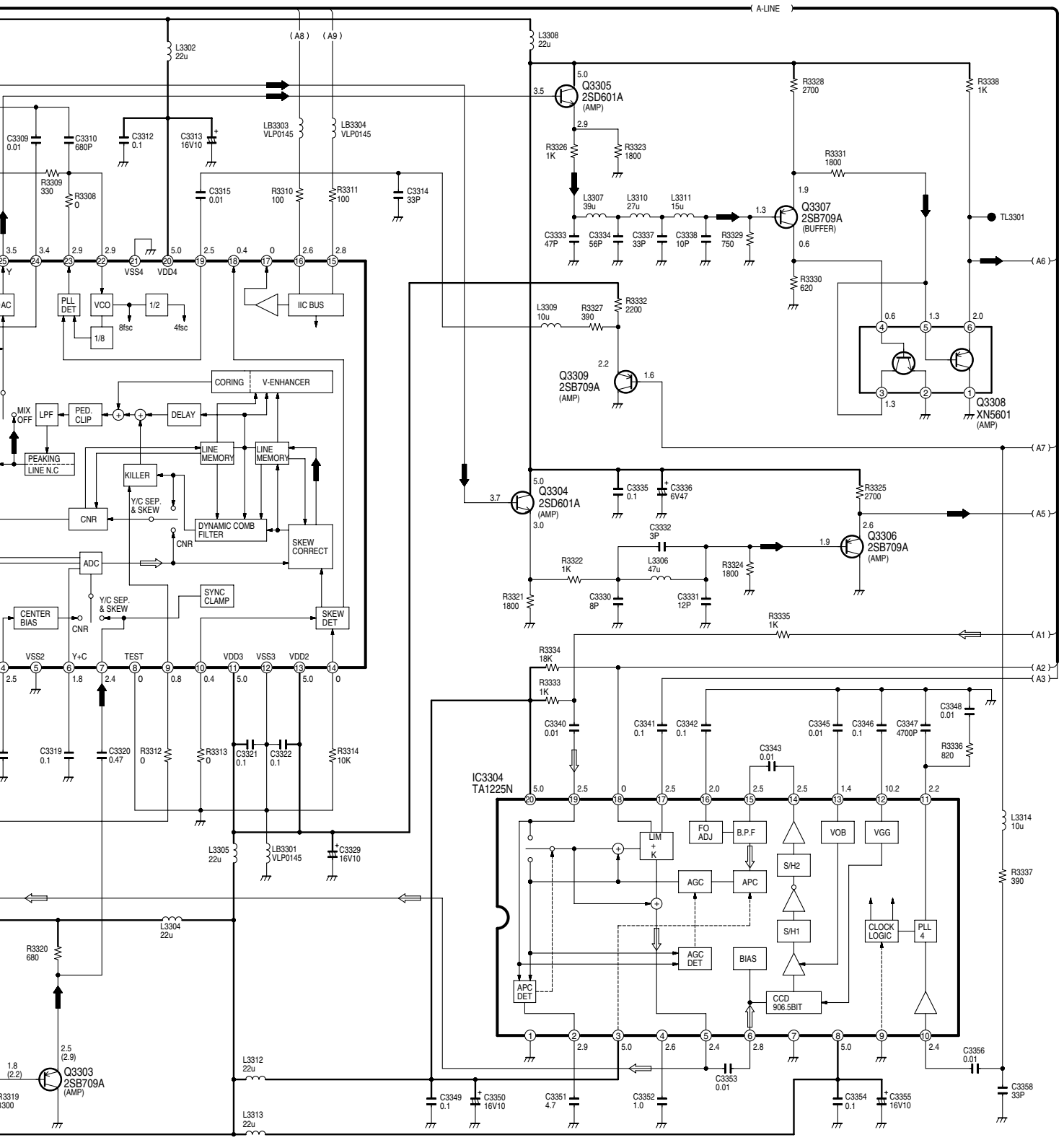
8.7. Y/C SEPARATION PACK SCHEMATIC DIAGRAM



NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKEST( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.(SP MODE)
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.(SP MODE)

NOTE:DO NOT ANY PART NUMBER SHOWN ON THIS ORDERING.WHEN YOU ORDER A PART,PLEAS

L PATH IN PLAYBACK MODE

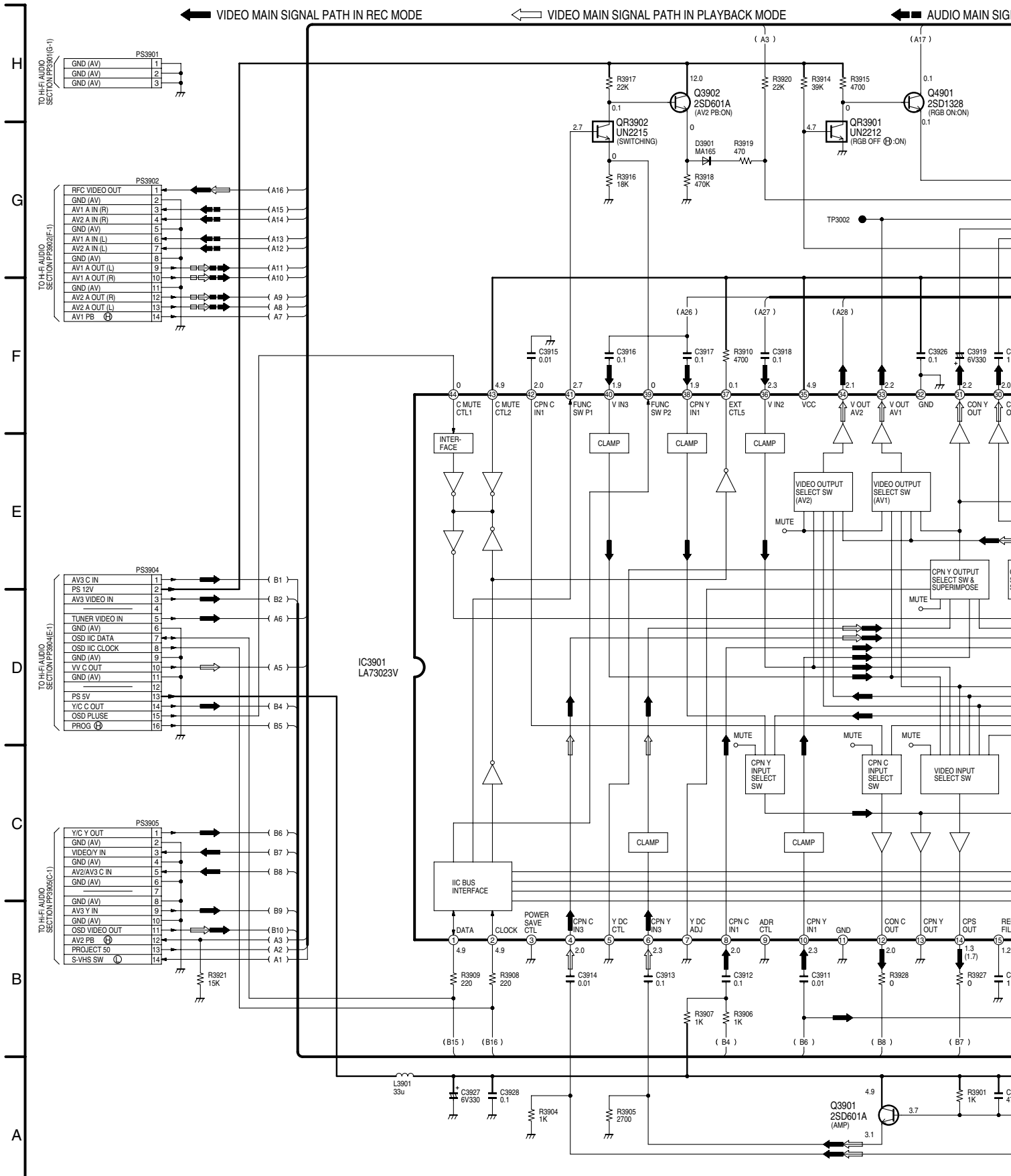


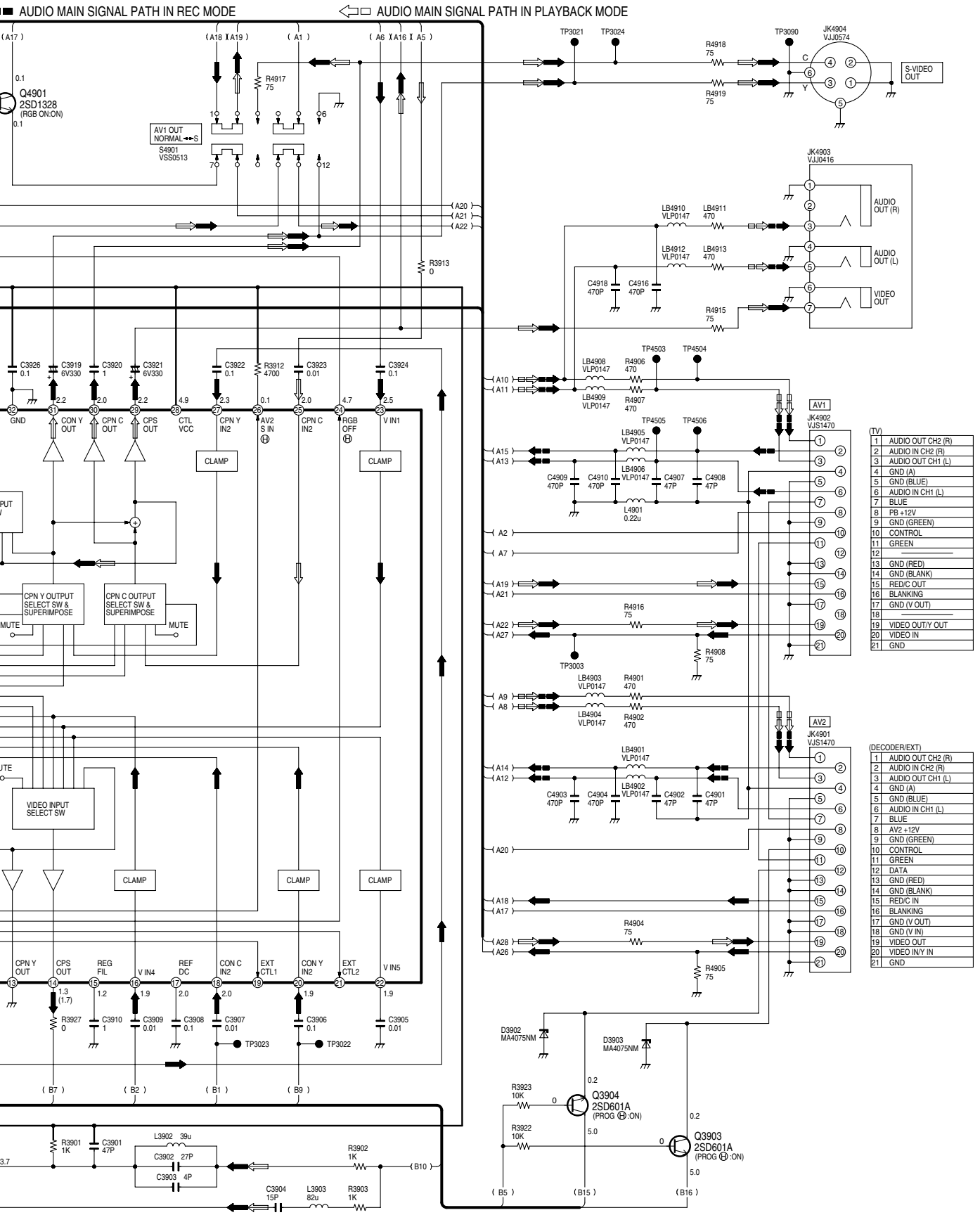
UMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR
U ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
Y/C SEPARATION PACK SCHEMATIC DIAGRAM

6	7	8	9	10	11

8.8. INPUT/ OUTPUT PACK SCHEMATIC DIAGRAM





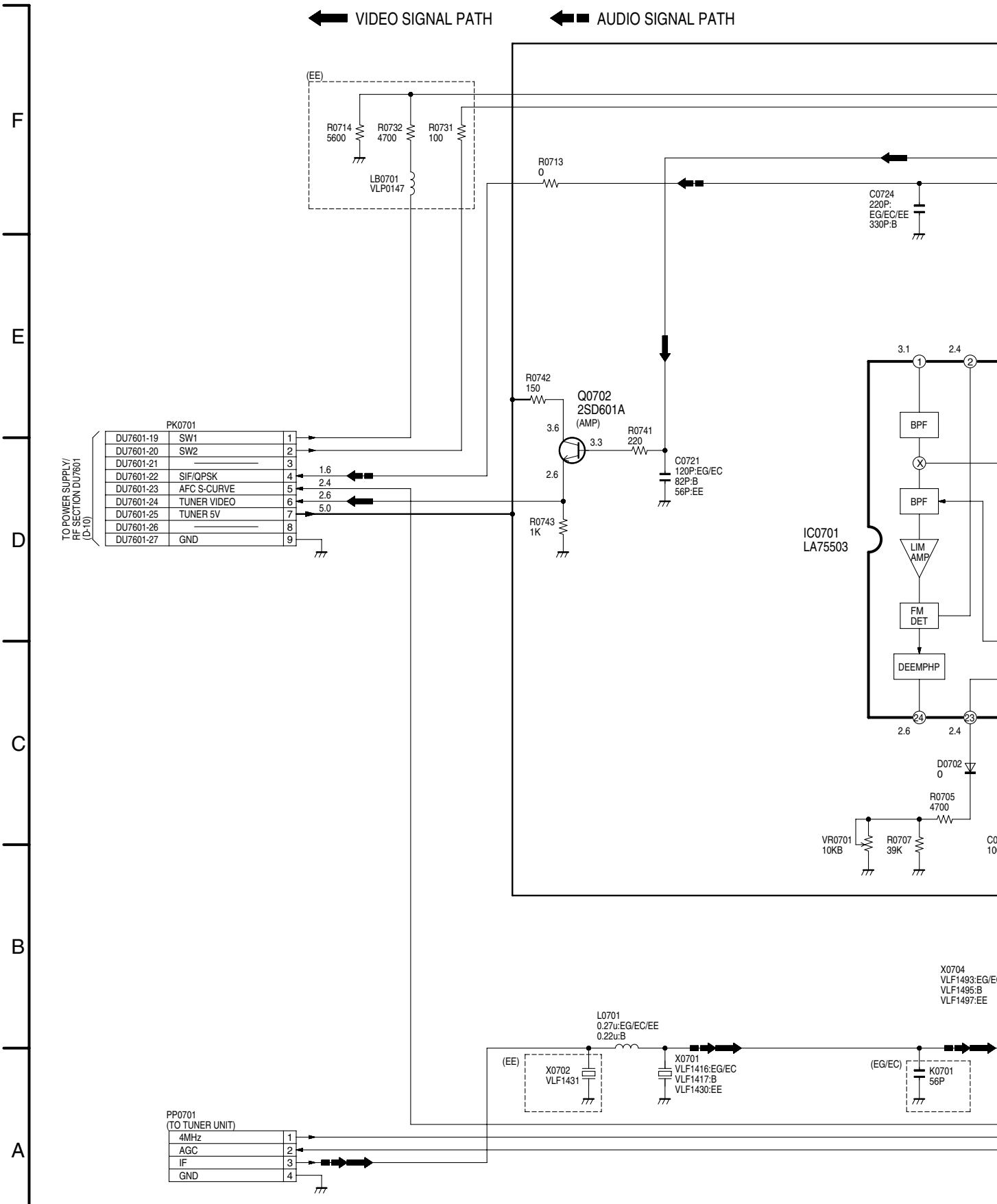
IS PLAYBACK MODE

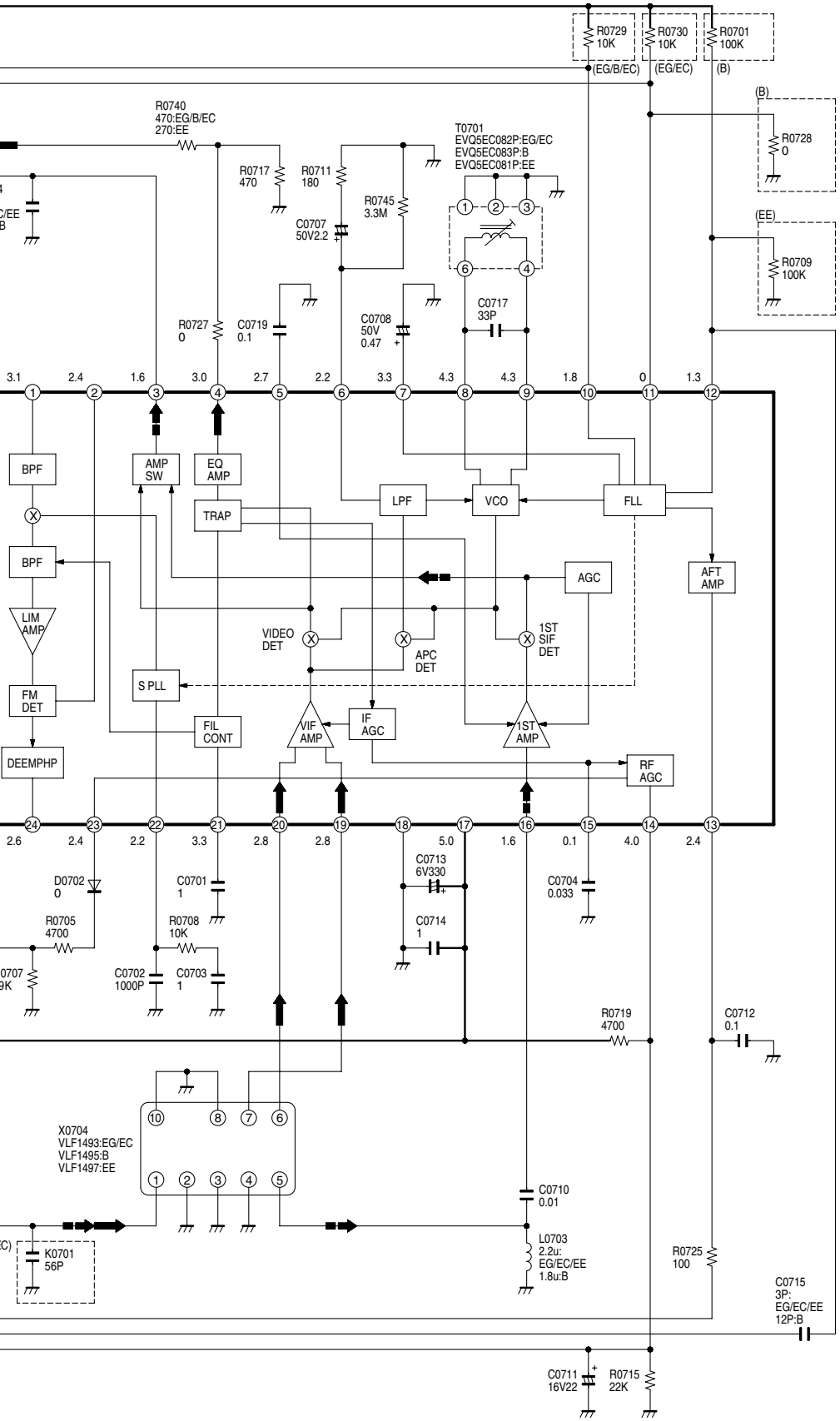
NOTE:DO NOT ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
INPUT/OUTPUT PACK SCHEMATIC DIAGRAM

7 | 8 | 9 | 10 | 11 | 12

8.9. TV DEMODULATOR PACK SCHEMATIC DIAGRAM



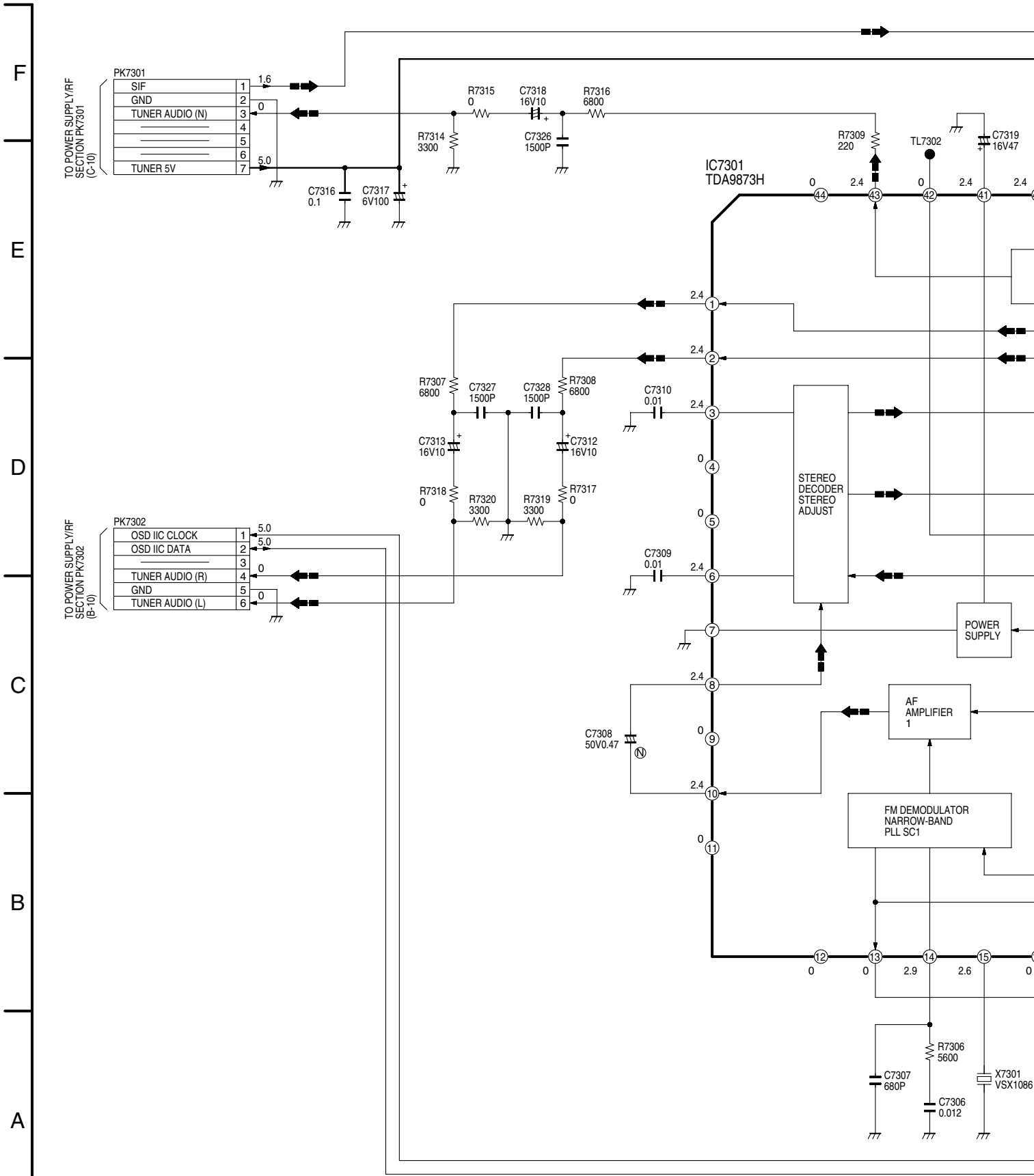


T NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR
ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
TV DEMODULATOR PACK SCHEMATIC DIAGRAM

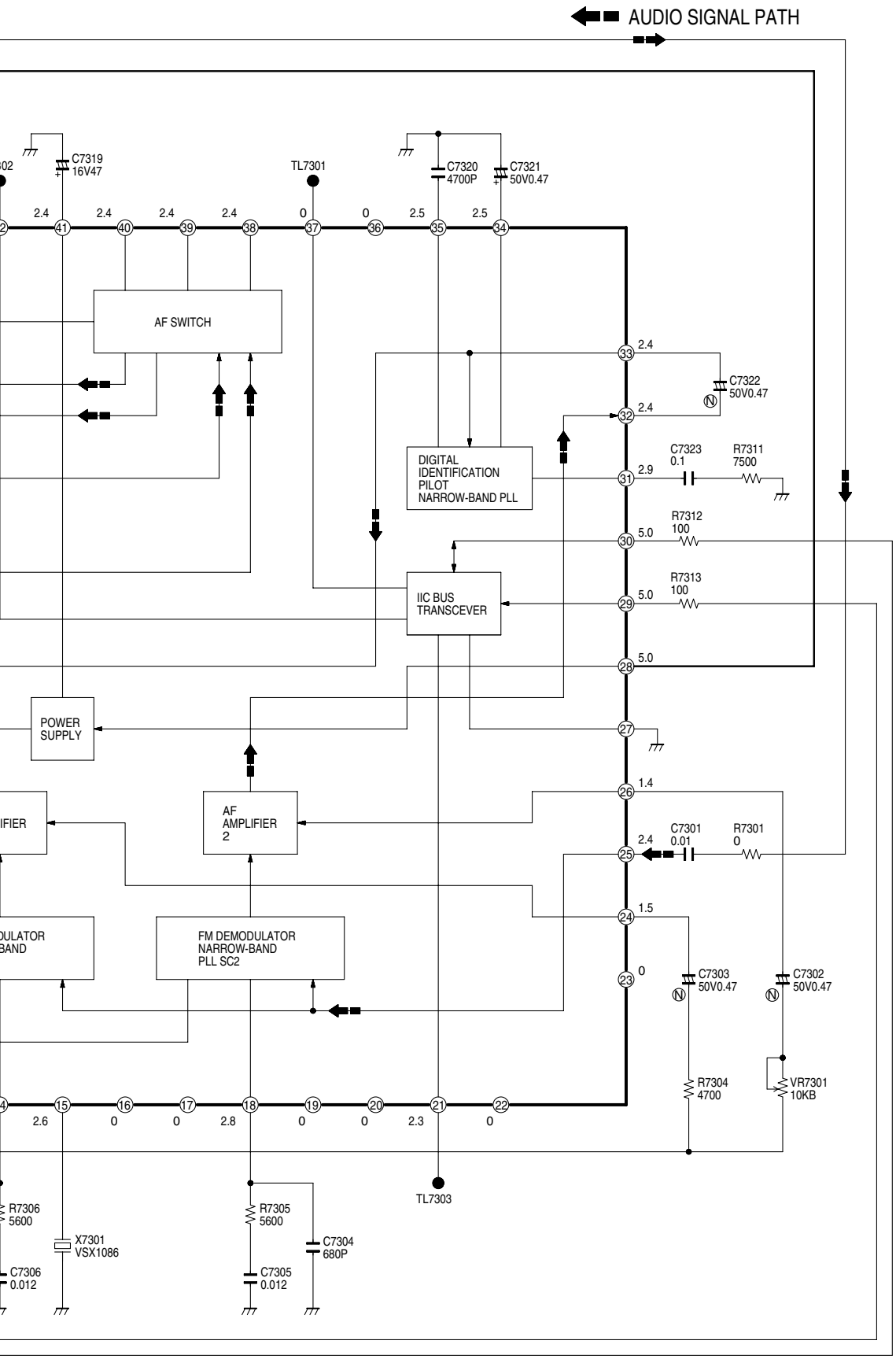
5 | 6 | 7 | 8

8.10. DECODER PACK SCHEMATIC DIAGRAM (NV-HS830EG)



NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUM
ORDERING. WHEN YOU OR

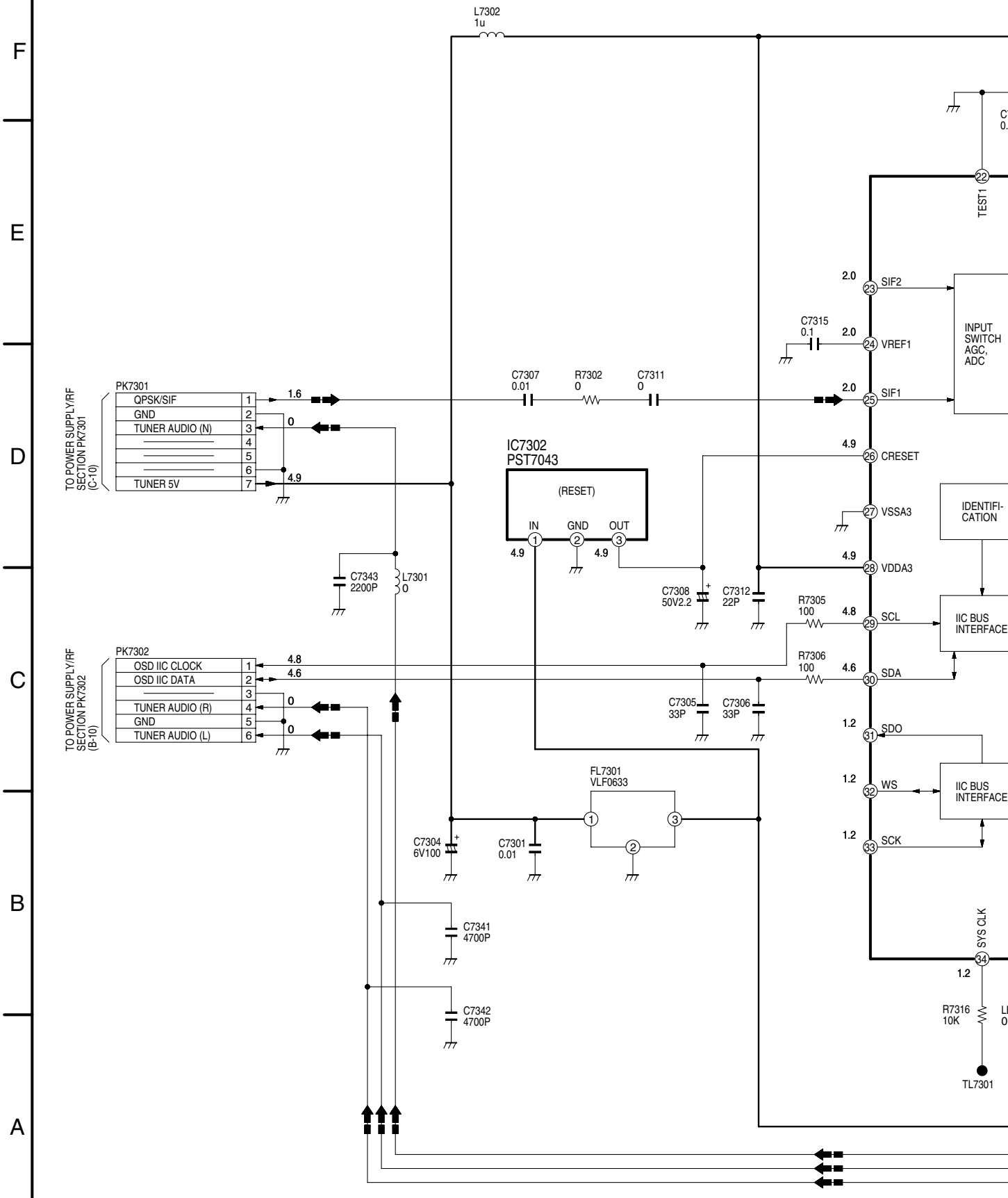


SE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR
G. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

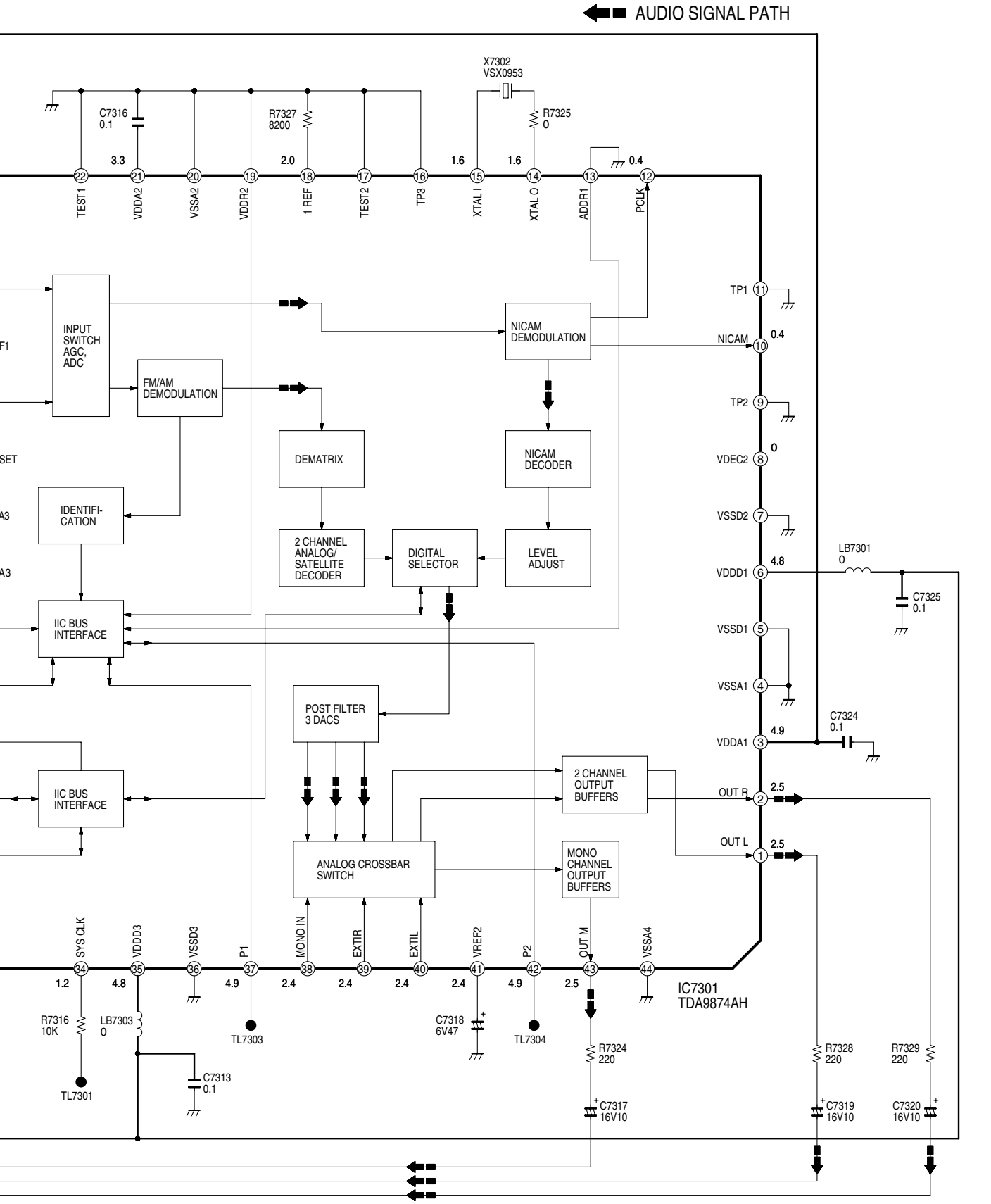
NV-HS830EG
DECODER PACK SCHEMATIC DIAGRAM

5 | 6 | 7 | 8

8.11. NICAM DECODER PACK SCHEMATIC DIAGRAM (NV-HS830B/EC/EE)



E)

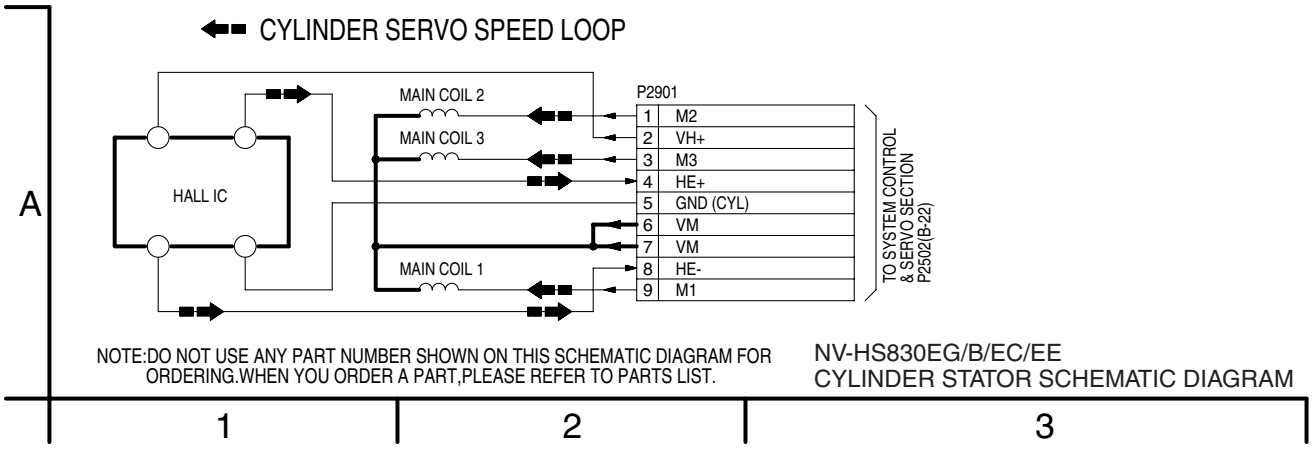


O NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR RDERING. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830B/EC/EE
NICAM DECODER PACK SCHEMATIC DIAGRAM

5 6 7 8

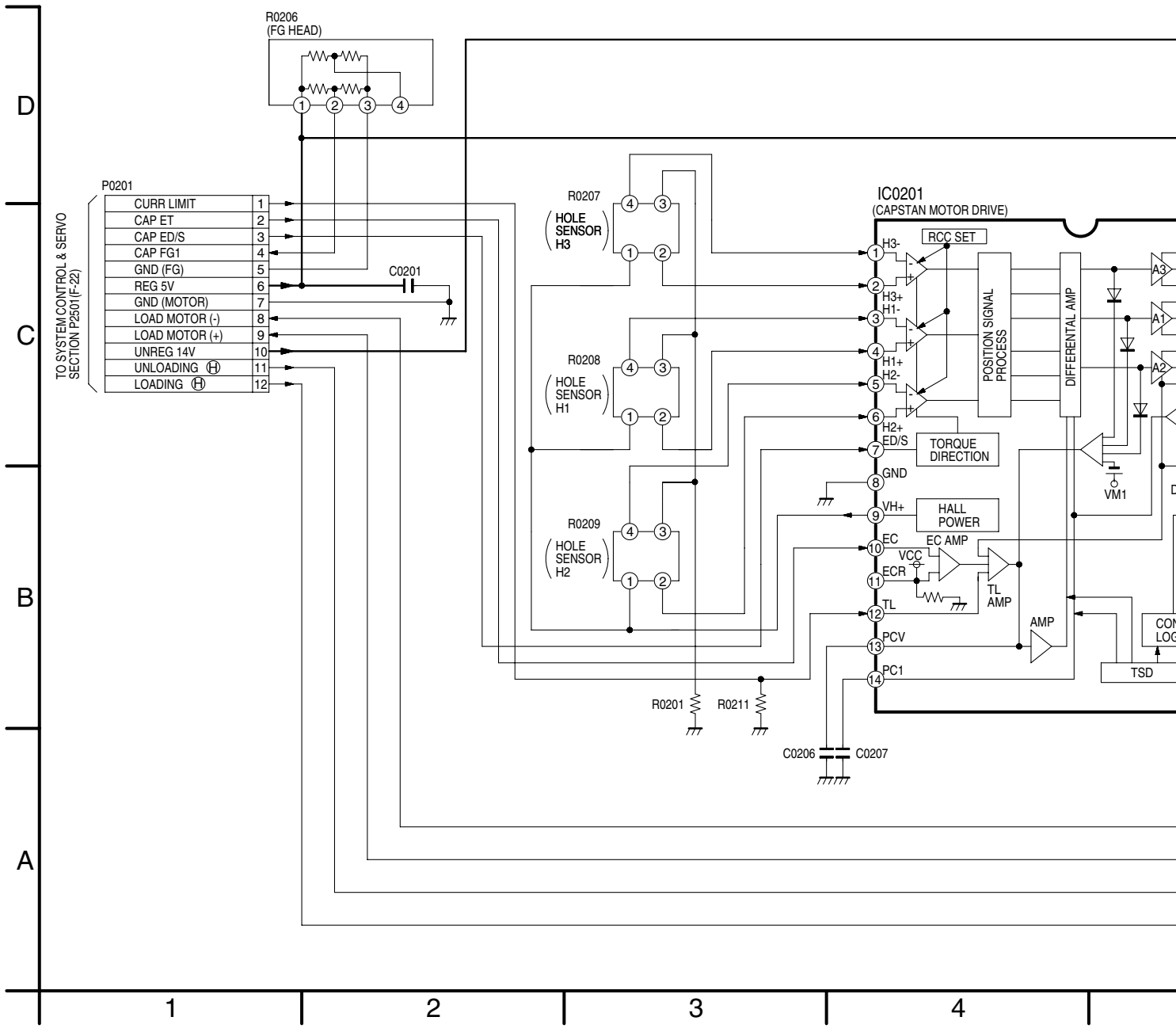
8.12. CYLINDER STATOR UNIT SCHEMATIC DIAGRAM

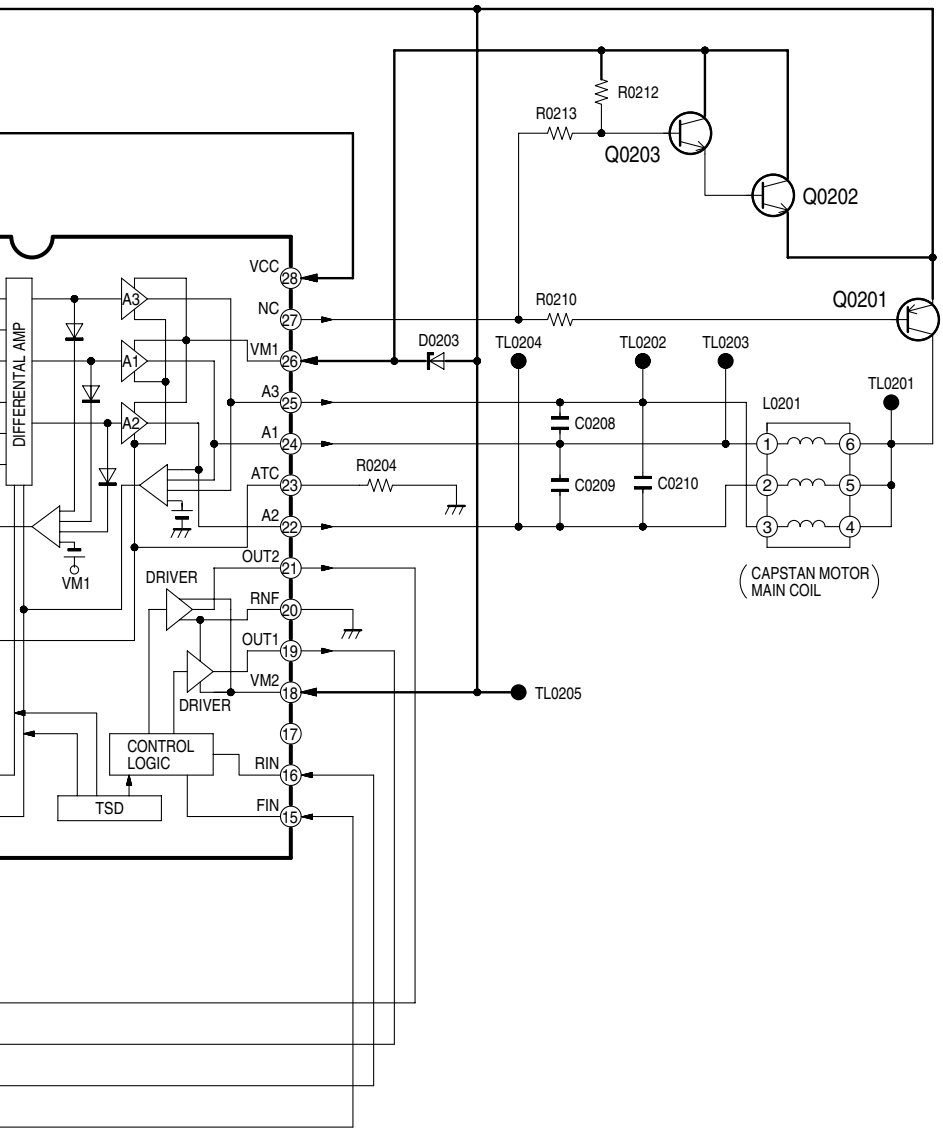


NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
CYLINDER STATOR SCHEMATIC DIAGRAM

8.13. CAPSTAN UNIT SCHEMATIC DIAGRAM

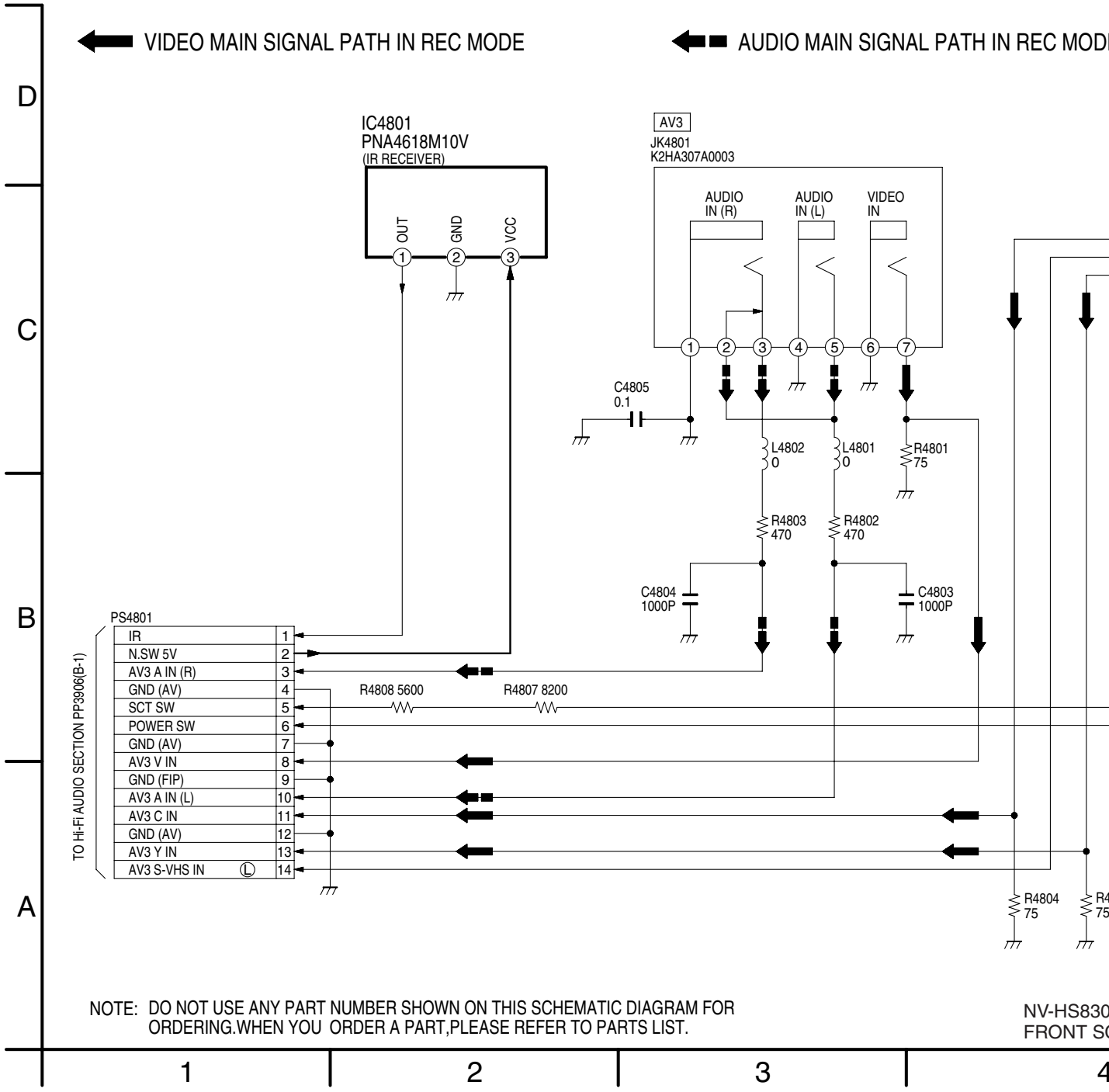




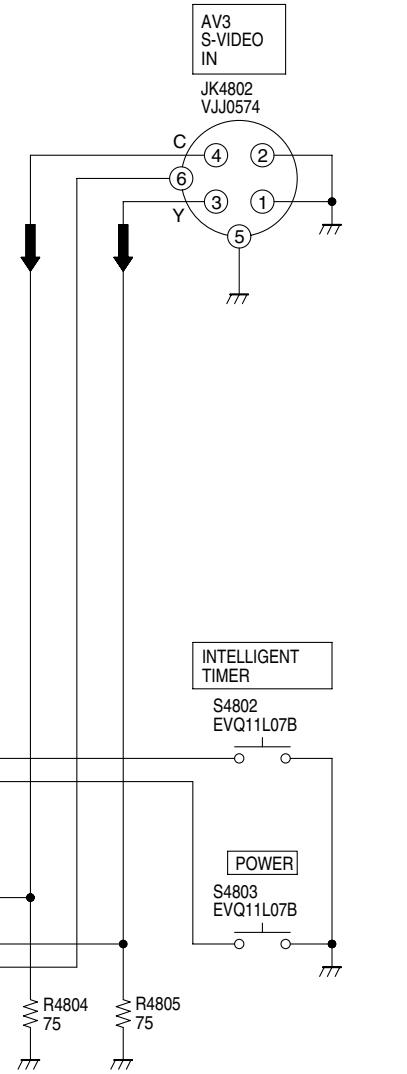
NV-HS830EG/B/EC/EE
CAPSTAN UNIT SCHEMATIC DIAGRAM

5 6 7

8.14. AV FRONT SCHEMATIC DIAGRAM



IN REC MODE



NV-HS830EG/B/EC/EE
FRONT SCHEMATIC DIAGRAM

4

MAIN SIGNAL PATH IN REC MODE

MAIN SIGNAL PATH IN PLAYBACK MODE

IC4501

JK4801 (AV3) FRONT
AUDIO IN (R)
AUDIO IN (L)
PS4801 PP3906 3
PS4801 PP3906 10
2
4

JK4902 (AV1) TV
1 AUDIO OUT (R)
2 AUDIO IN (R)
3 AUDIO OUT (L)
6 AUDIO IN (L)
TP4504
TP4503
TP4506
PS3902 PP3902 10
PS3902 PP3902 9
PS3902 PP3902 3
PS3902 PP3902 4
QR4504 MUTE
QR4504 MUTE
63
57
9
10

JK4903
AUDIO OUT (R)
AUDIO OUT (L)
TP4505
PS3902 PP3902 6
PS3902 PP3902 7
14
15

JK4901 (AV2) DECODER/EXT
1 AUDIO OUT (R)
2 AUDIO IN (R)
3 AUDIO OUT (L)
6 AUDIO IN (L)
PS3902 PP3902 12
PS3902 PP3902 13
QR4503 MUTE
QR4503 MUTE
51
52

SWITCH RCH
SWITCH LCH

INPUT SELECT SWITCH RCH
INPUT SELECT SWITCH LCH
OUTPUT SELECT SWITCH RCH
OUTPUT SELECT SWITCH LCH
PNR RCH
PNR LCH

AGC & SWITCH
FM MODULATOR/ DEMODULATOR
LPF
BPF
BPF
LPF
AGC
AGC & SWITCH
FM MODULATOR/ DEMODULATOR

IIC BUS INTERFACE
42
43
MAIN IIC CLOCK
MAIN IIC DATA
TO/FROM SYSTEM CONTROL

VCO F0
45
FSC
FROM LUMINANCE & CHROMINANCE

27
AUDIO H.SW
FROM SYSTEM CONTROL

D.FM REC (L)
30
FROM SYSTEM CONTROL

PREAMP & SWITCH
29
24
21
22
P5001 8
P5001 9
P5001 10
L
R
Hi-Fi AUDIO HEAD

MUTE CTL
36
MUTE (L)
FROM SYSTEM CONTROL

TO TUNER
RFC AUDIO OUT
QR4507 MUTE
59

FROM DECODER
TUNER AUDIO (R)
TUNER AUDIO (L)
8
13

IC3001
(B/EC/EE)
(EG)
Q7601 MUTE
FROM DECODER/ TV DEMODU
TUNER AUDIO (N)
61

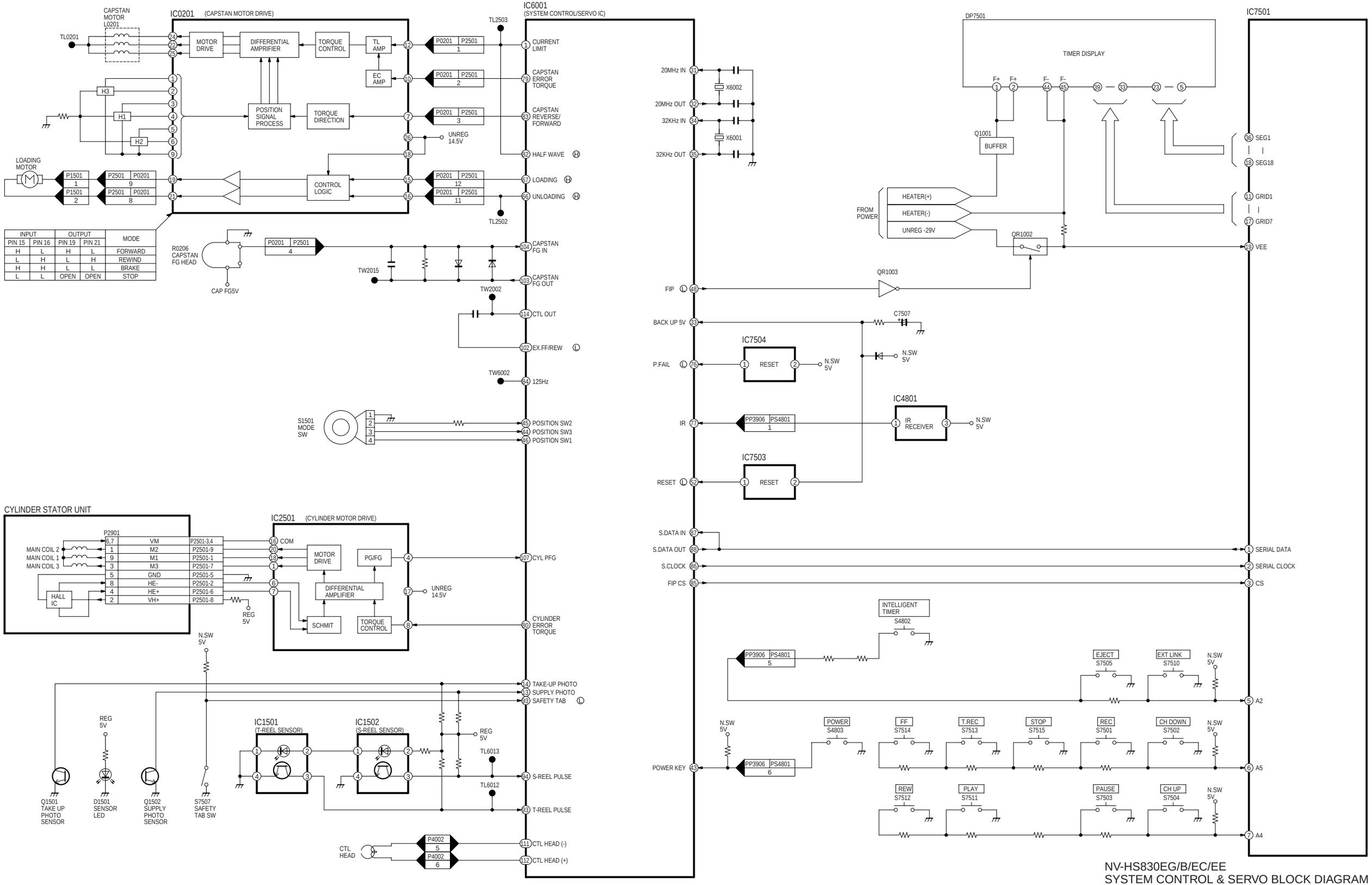
MUTE
53
62

TO/FROM AC HEAD
A.HEAD (W)
A.HEAD (R)
99
97
REC EQ
MUTE
VCA
R
P
62
61

NORMAL SELECT SWITCH

MUTE CTL
78

NV-HS830EG/B/EC/EE
AUDIO BLOCK DIAGRAM



NV-HS830EG/B/EC/EE
SYSTEM CONTROL & SERVO BLOCK DIAGRAM

VIDEO MAIN SIGNAL PATH IN REC MODE

VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE

IC3901
(INPUT/OUTPUT SELECT)

TO/FROM SYSTEM CONTROL
OSD IIC DATA
OSD IIC CLOCK
PP3904 PS3904 7
PP3904 PS3904 8
DATA
CLOCK
IIC BUS INTERFACE

JK4904 S-VIDEO OUT
REAR C OUT
REAR Y OUT
TP3024
TP3021
CON Y OUT
CPS OUT
CPN C OUT

JK4902 AV1(TV)
VIDEO/Y OUT
C OUT
VIDEO IN
S4901 NORMAL ↔ S-VHS
TP3003
V IN2
CLAMP

JK4903 VIDEO OUT
REAR VIDEO OUT
TP3002
V OUT AV1

JK4901 AV2 (DECODER)
VIDEO OUT
C IN
VIDEO/Y IN
V OUT AV2
CPN Y IN1
V IN3

TUNER/ TV DEMODULATOR
RFC VIDEO OUT
TUNER VIDEO
PP3902 PS3902 1
PP3904 PS3904 5
V IN1

JK4801 AV3 VIDEO IN
FRONT VIDEO IN
PS4801 PP3906 8

JK4802 AV3 S-VIDEO IN
FRONT C IN
FRONT Y IN
PS4801 PP3906 11
PS4801 PP3906 13

CLAMP

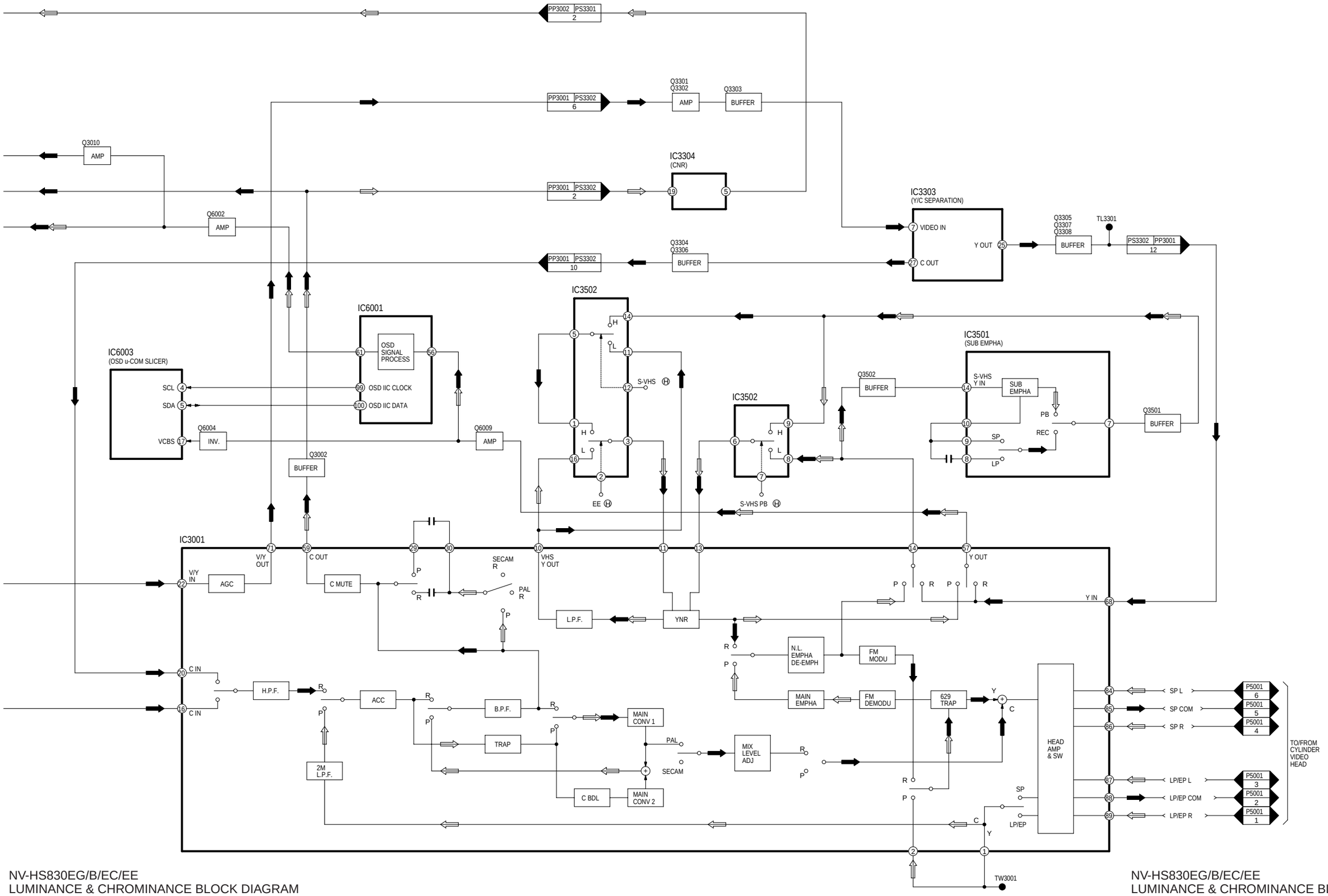
CPN C IN2
CPN Y IN2
CPN C IN1
CPN C IN3
CPN Y IN3
CON Y IN2
CON C IN2
V IN4
CPS OUT
CON C OUT

L3903 C3904 B.P.F
Q3901 BUFFER
L3902 C3901 C3902 C3903 L.P.F.

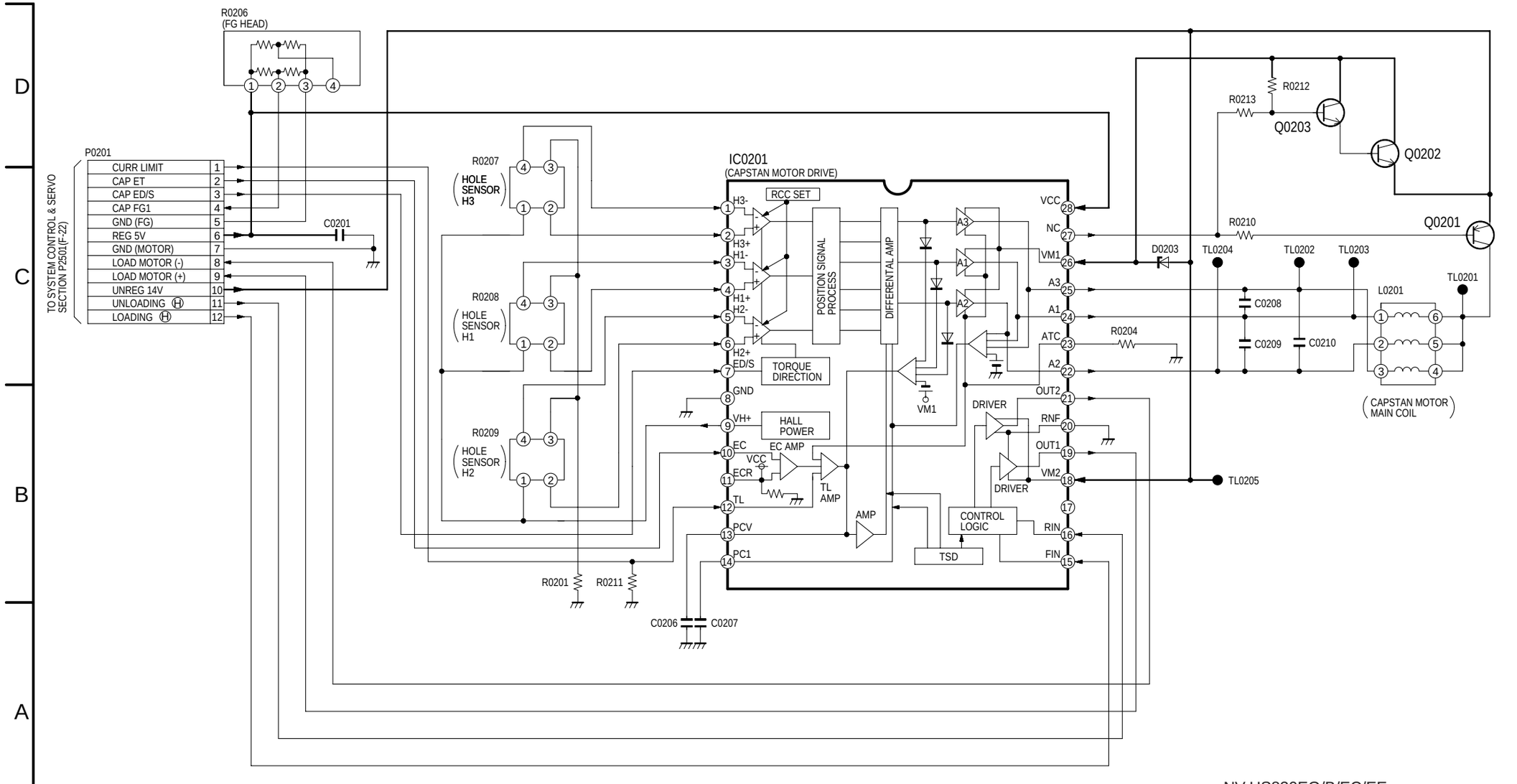
TP3022
TP3023

PS3904 PP3904 10 — VV C OUT
PS3905 PP3905 1 — Y/C Y OUT
PS3904 PP3904 14 — Y/C C OUT
PS3905 PP3905 11 — OSD V OUT
PS3905 PP3905 9
PS3904 PP3904 1
PS3904 PP3904 3
PS3905 PP3905 3 — VIDEO/Y IN
PS3905 PP3905 5 — AV2/3 C IN

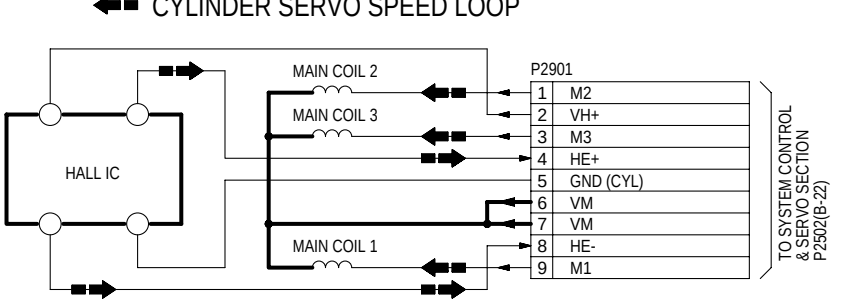
NV-HS830EG/B/EC/EE
LUMINANCE & CHROMINANCE BLOCK DIAGRAM



NV-HS830EG/B/EC/EE
LUMINANCE & CHROMINANCE BLOCK DIAGRAM



NV-HS830EG/B/EC/EE
CAPSTAN UNIT SCHEMATIC DIAGRAM



NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
CYLINDER STATOR SCHEMATIC DIAGRAM

A

1 2 3

AUDIO SIGNAL PATH

TO POWER SUPPLY/RF SECTION PK7301 (C-10)

PK7301
SIF 1
GND 2
TUNER AUDIO (N) 3
4
5
6
TUNER 5V 7

TO POWER SUPPLY/RF SECTION PK7302 (B-10)

PK7302
OSD IIC CLOCK 1
OSD IIC DATA 2
3
TUNER AUDIO (R) 4
GND 5
TUNER AUDIO (L) 6

IC7301
TDA9873H

AF SWITCH
STEREO DECODER STEREO ADJUST
POWER SUPPLY
AF AMPLIFIER 1
AF AMPLIFIER 2
FM DEMODULATOR NARROW-BAND PLL SC1
FM DEMODULATOR NARROW-BAND PLL SC2
DIGITAL IDENTIFICATION PILOT NARROW-BAND PLL
IIC BUS TRANSCEVER

R7315 0
C7318 16V10
R7316 6800
R7314 3300
C7326 1500P
C7316 0.1
C7317 6V100
R7309 220
TL7302
C7319 16V47
TL7301
C7320 4700P
C7321 50V0.47
C7322 50V0.47 (N)
C7323 0.1
R7311 7500
R7312 100
R7313 100
R7307 6800
C7327 1500P
C7328 1500P
R7308 6800
C7310 0.01
C7313 16V10
C7312 16V10
R7318 0
R7320 3300
R7319 3300
R7317 0
C7309 0.01
C7308 50V0.47 (N)
C7301 0.01
R7301 0
C7303 50V0.47 (N)
C7302 50V0.47 (N)
R7304 4700
VR7301 10KB
R7306 5600
C7307 680P
C7306 0.012
X7301 VSX1086
R7305 5600
C7305 0.012
C7304 680P
TL7303

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG
DECODER PACK SCHEMATIC DIAGRAM

Ⓡ :TO POWER SUPPLY/RF SECTION
Ⓢ :TO SYSTEM CONTROL & SERVO SECTION
Ⓥ :TO LUMINANCE & CHROMINANCE/AUDIO SECTION
Ⓣ :TO TIMER SECTION

VIDEO MAIN SIGNAL PATH IN REC MODE
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE
AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

Ⓢ MAIN IIC CLOCK (A3)
Ⓢ MAIN IIC DATA (A2)
Ⓥ FSC (A1)
Ⓢ MUTE Ⓗ

TO INPUT/OUTPUT PACK PS3904(C-1)
PP3901: GND (AV) 1, GND (AV) 2, GND (AV) 3

TO INPUT/OUTPUT PACK PS3902(F-1)
PP3902: RFC VIDEO OUT 1 (B1), GND (AV) 2, AV1 A IN (R) 3 (B2), AV2 A IN (R) 4 (B3), GND (AV) 5, AV1 A IN (L) 6 (B4), AV2 A IN (L) 7 (B5), GND (AV) 8, AV1 A OUT (L) 9, AV1 A OUT (R) 10, GND (AV) 11, AV2 A OUT (R) 12, AV2 A OUT (L) 13, AV1 PB 12V 14 (B6)

TO INPUT/OUTPUT PACK PS3904(C-1)
PP3904: AV3 C IN 1, PS 12V 2, AV3 VIDEO IN 3, 4, TUNER VIDEO IN 5 (B12), GND (AV) 6, OSD IIC DATA 7 (B13), OSD IIC CLOCK 8 (B14), GND (AV) 9, VV C OUT 10 (B15), GND (AV) 11, 12, PS 5V 13, Y/C C OUT 14 (B17), OSD PULSE 15 (B18), PROG Ⓗ 16 (B19)

TO INPUT/OUTPUT PACK PS3905(E-1)
PP3905: Y/C Y OUT 1 (B20), GND (AV) 2, VIDEO/Y IN 3 (B21), GND (AV) 4, AV2/AV3 C IN 5 (B22), GND (AV) 6, 7, GND (AV) 8, AV3 Y IN 9, GND (AV) 10, OSD VIDEO OUT 11 (B23), AV2 PB Ⓗ 12 (B24), PROJECT 50 13 (B25), S-VHS SW Ⓛ 14 (B26)

TO AV FRONT PS4801(B-1)
PP3906: IR 1 (B28), N.SW 5V 2, AV3 A IN (R) 3 (B29), GND (AV) 4, SCT SW 5 (B30), POWER SW 6 (B31), GND (AV) 7, AV3 VIDEO IN 8, GND (FIP) 9, AV3 A IN (L) 10 (B32), AV3 C IN 11, GND (AV) 12, AV3 Y IN 13, AV3 S-VHS IN Ⓛ 14 (B33)
TW3901

Ⓢ RFC MUTE Ⓗ
Ⓡ PS 5V
Ⓡ N.SW 5V
Ⓡ PS 12V

L4502 1.2u
C4526 0.1
C4525 6V100
QR4501 UN2113 (BUFFER) -1.4 (-0.6)
QR4503 XN0121600L (MUTE)
QR4504 XN0121600L (MUTE)
QR4502 UN2113 (BUFFER) -1.3 (-0.6)
QR4507 UN2216 (MUTE)
R4533 220, R4530 100K
R4531 220, R4532 100K
R4535 220, R4534 100K
C4544 100P
R4538 220, R4536 100K
C4545 100P
L4503 0
C4539 0.1
C4534 16V47
R4537 10K, R4543 220
R4540 22K, C4538 0.1, R3539 3600
C4530 16V10
C4531 16V10
C4532 16V10
C4533 16V10
C4535 16V10
C4536 16V22
SWITCH RCH
SWITCH LCH
NORMAL OUTPUT SWITCH
DET
VCC2
GND
OUTPUT SELECT SWITCH RCH
OUTPUT SELECT SWITCH LCH
INPUT SWITCH RCH
INPUT SWITCH LCH
IC4501 AN3656NFBPBV
C4540 0.1
C4541 0.1
C4501 16V10
C4502 16V10
C4503 16V10
R4505 4700, R4502 56K
R4506 4700, R4501 56K
R4507 10K, R4504 22K, R4508 4700, R4514 56K, R4509 4700, R4516 56K
R4510 10K, R4503 22K, R4511 4700, R4513 56K, R4512 4700, R4515 56K
(B29) (B32) (B38) (B2) (B3) (B39) (B4) (B5)

R4522 510, C4524 0.047, C4523 10V33
R4521 4700
C4529 16V10, R4526 1K, R4525 1K
R4524 30K, R4523 1K
C4522 16V10, C4521 6V22
IIC BUS INTERFACE
VCO-FO
VCC
GND(R)
REC AGC ADJ.
MUTE CONTROL
PNR RCH
PNR LCH
AGC & SWITCH
FM MODULATOR/ DEMODULATOR
LPF
BPF
AGC
PREAMP & SWITCH
REC AGC DET
ENV.DET OUT
REC DC2
R4520 120K, C4520 0.015, C4519 0.22
R4519 820, TW4502, D4502 MA165, TL4503, TW4511
C4517 0.1
C4514 0.01
C4511 0.01
C4509 0.033
C4508 0.015
C4507 16V22
C4506 16V10
C4504 0.047, C4515 6V100
R4518 4700, R4517 510
C4505 10V33, C4516 0.1
TW4501
L4501 1.2u

D.FM REC Ⓗ Ⓢ
ABS NORMAL Ⓗ Ⓢ
A.HEAD SW Ⓢ
GND (A) Ⓥ
AUDIO HEAD L Ⓥ
AUDIO HEAD R Ⓥ
AUDIO HEAD COM Ⓥ
RFC VIDEO OUT Ⓡ
AV1 PB 12V Ⓢ
TUNER VIDEO Ⓡ
OSD IIC DATA Ⓢ
OSD IIC CLOCK Ⓢ
VV C OUT Ⓥ
Y/C C OUT Ⓥ
OSD PULSE Ⓢ
PROG Ⓗ Ⓢ
Y/C Y OUT Ⓥ
VIDEO/Y IN Ⓥ
AV2/AV3 C IN Ⓥ
OSD VIDEO OUT Ⓢ
AV2 PB Ⓗ Ⓢ
PROJECT 50 Ⓢ
S-VHS SW Ⓛ Ⓢ
IR Ⓢ
SCT SW Ⓣ
POWER SW Ⓣ
AV3 S-VHS IN Ⓛ Ⓢ
AUDIO IN (N) Ⓥ
RFC AUDIO OUT Ⓡ
AUDIO OUT (N) Ⓥ
TUNER AUDIO (R) Ⓡ
TUNER AUDIO (L) Ⓡ
GND Ⓡ
GND (SYS) Ⓡ
GND (LVM) Ⓡ
GND (HA2) Ⓡ

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.(SP MODE)

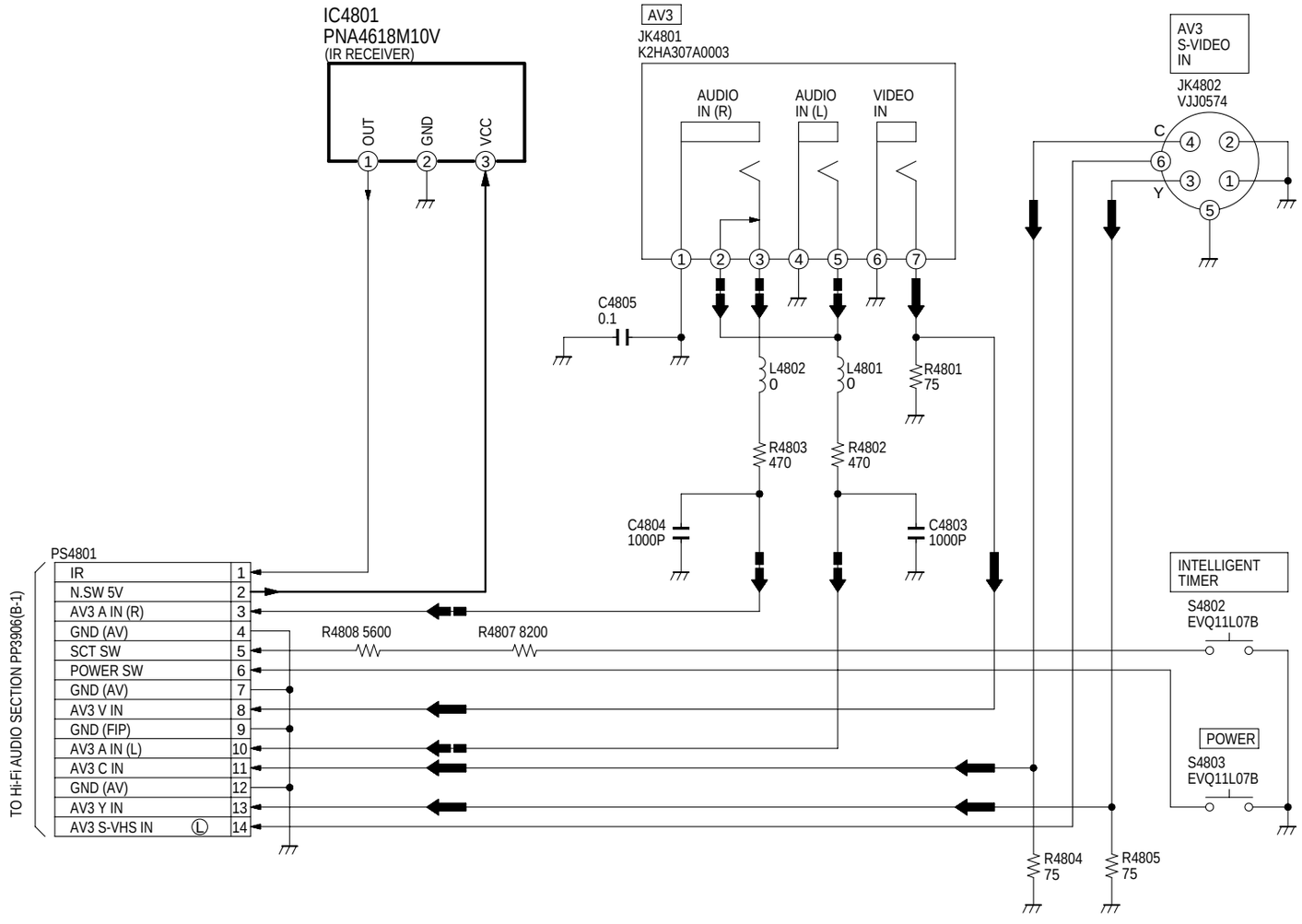
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.(SP MODE)

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
Hi-Fi AUDIO SECTION SCHEMATIC DIAGRAM

VIDEO MAIN SIGNAL PATH IN REC MODE

AUDIO MAIN SIGNAL PATH IN REC MODE



NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
FRONT SCHEMATIC DIAGRAM

VIDEO MAIN SIGNAL PATH IN REC MODE
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE
AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

PS3901 — TO HI-FI AUDIO SECTION PF2904(E-1)
GND (AV) 1
GND (AV) 2
GND (AV) 3

PS3902 — TO HI-FI AUDIO SECTION PF2902(F-1)
RFC VIDEO OUT 1 (A16)
GND (AV) 2
AV1 A IN (R) 3 (A15)
AV2 A IN (R) 4 (A14)
GND (AV) 5
AV1 A IN (L) 6 (A13)
AV2 A IN (L) 7 (A12)
GND (AV) 8
AV1 A OUT (L) 9 (A11)
AV1 A OUT (R) 10 (A10)
GND (AV) 11
AV2 A OUT (R) 12 (A9)
AV2 A OUT (L) 13 (A8)
AV1 PB (H) 14 (A7)

PS3904 — TO HI-FI AUDIO SECTION PF2904(E-1)
AV3 C IN 1 (B1)
PS 12V 2
AV3 VIDEO IN 3 (B2)
4
TUNER VIDEO IN 5 (A6)
GND (AV) 6
OSD IIC DATA 7
OSD IIC CLOCK 8
GND (AV) 9
VV C OUT 10 (A5)
GND (AV) 11
12
PS 5V 13
Y/C C OUT 14 (B4)
OSD PLUSE 15 (B5)
PROG (H) 16

PS3905 — TO HI-FI AUDIO SECTION PF2905(C-1)
Y/C Y OUT 1 (B6)
GND (AV) 2
VIDEO/Y IN 3 (B7)
GND (AV) 4
AV2/AV3 C IN 5 (B8)
GND (AV) 6
7
GND (AV) 8
AV3 Y IN 9 (B9)
GND (AV) 10
OSD VIDEO OUT 11 (B10)
AV2 PB (H) 12 (A3)
PROJECT 50 13 (A2)
S-VHS SW (L) 14 (A1)

R3921 15K

IC3901
LA73023V

Q3902 2SD601A (AV2 PB:ON)
QR3902 UN2215 (SWITCHING)
D3901 MA165
Q4901 2SD1328 (RGB ON:ON)
QR3901 UN2212 (RGB OFF (H):ON)
S4901 VSS0513 — AV1 OUT NORMAL ⇔ S

TP3002
TP3021 TP3024
TP3090
JK4904 VJJ0574 — S-VIDEO OUT
JK4903 VJJ0416 — AUDIO OUT (R), AUDIO OUT (L), VIDEO OUT
TP4503 TP4504
TP4505 TP4506
JK4902 VJS1470 — AV1
JK4901 VJS1470 — AV2
TP3003
TP3023 TP3022

(TV)

1	AUDIO OUT CH2 (R)
2	AUDIO IN CH2 (R)
3	AUDIO OUT CH1 (L)
4	GND (A)
5	GND (BLUE)
6	AUDIO IN CH1 (L)
7	BLUE
8	PB +12V
9	GND (GREEN)
10	CONTROL
11	GREEN
12	
13	GND (RED)
14	GND (BLANK)
15	RED/C OUT
16	BLANKING
17	GND (V OUT)
18	
19	VIDEO OUT/Y OUT
20	VIDEO IN
21	GND

(DECODER/EXT)

1	AUDIO OUT CH2 (R)
2	AUDIO IN CH2 (R)
3	AUDIO OUT CH1 (L)
4	GND (A)
5	GND (BLUE)
6	AUDIO IN CH1 (L)
7	BLUE
8	AV2 +12V
9	GND (GREEN)
10	CONTROL
11	GREEN
12	DATA
13	GND (RED)
14	GND (BLANK)
15	RED/C IN
16	BLANKING
17	GND (V OUT)
18	GND (V IN)
19	VIDEO OUT
20	VIDEO IN/Y IN
21	GND

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR SIGNAL.(SP MODE)

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.(SP MODE)

NOTE:DO NOT ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
INPUT/OUTPUT PACK SCHEMATIC DIAGRAM

AUDIO SIGNAL PATH

L7302 1u

X7302 VSX0953

C7316 0.1 · R7327 8200 · R7325 0

TEST1 · VDDA2 · VSSA2 · VDDR2 · 1 REF · TEST2 · TP3 · XTAL I · XTAL O · ADDR1 · PCLK

SIF2 · VREF1 · SIF1 · CRESET · VSSA3 · VDDA3 · SCL · SDA · SDO · WS · SCK

C7315 0.1

INPUT SWITCH AGC, ADC

FM/AM DEMODULATION

IDENTIFI-CATION

IIC BUS INTERFACE

IIC BUS INTERFACE

NICAM DEMODULATION

DEMATRIX

NICAM DECODER

2 CHANNEL ANALOG/ SATELLITE DECODER

DIGITAL SELECTOR

LEVEL ADJUST

POST FILTER 3 DACS

2 CHANNEL OUTPUT BUFFERS

ANALOG CROSSBAR SWITCH

MONO CHANNEL OUTPUT BUFFERS

TP1 · NICAM · TP2 · VDEC2 · VSSD2 · VDDD1 · VSSD1 · VSSA1 · VDDA1 · OUT R · OUT L

LB7301 0 · C7325 0.1 · C7324 0.1

SYS CLK · VDDD3 · VSSD3 · P1 · MONO IN · EXTIR · EXTIL · VREF2 · P2 · OUT M · VSSA4

IC7301
TDA9874AH

PK7301 (TO POWER SUPPLY/RF SECTION PK7301 (C-10))
QPSK/SIF 1 · GND 2 · TUNER AUDIO (N) 3 · 4 · 5 · 6 · TUNER 5V 7

C7307 0.01 · R7302 0 · C7311 0

IC7302
PST7043
(RESET)
IN · GND · OUT

C7343 2200P · L7301 0

C7308 50V2.2 · C7312 22P

R7305 100 · R7306 100

C7305 33P · C7306 33P

PK7302 (TO POWER SUPPLY/RF SECTION PK7302 (B-10))
OSD IIC CLOCK 1 · OSD IIC DATA 2 · 3 · TUNER AUDIO (R) 4 · GND 5 · TUNER AUDIO (L) 6

FL7301 VLF0633

C7304 6V100 · C7301 0.01

C7341 4700P · C7342 4700P

R7316 10K · LB7303 0 · C7313 0.1

TL7301 · TL7303 · TL7304

C7318 6V47

R7324 220 · C7317 16V10

R7328 220 · C7319 16V10

R7329 220 · C7320 16V10

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

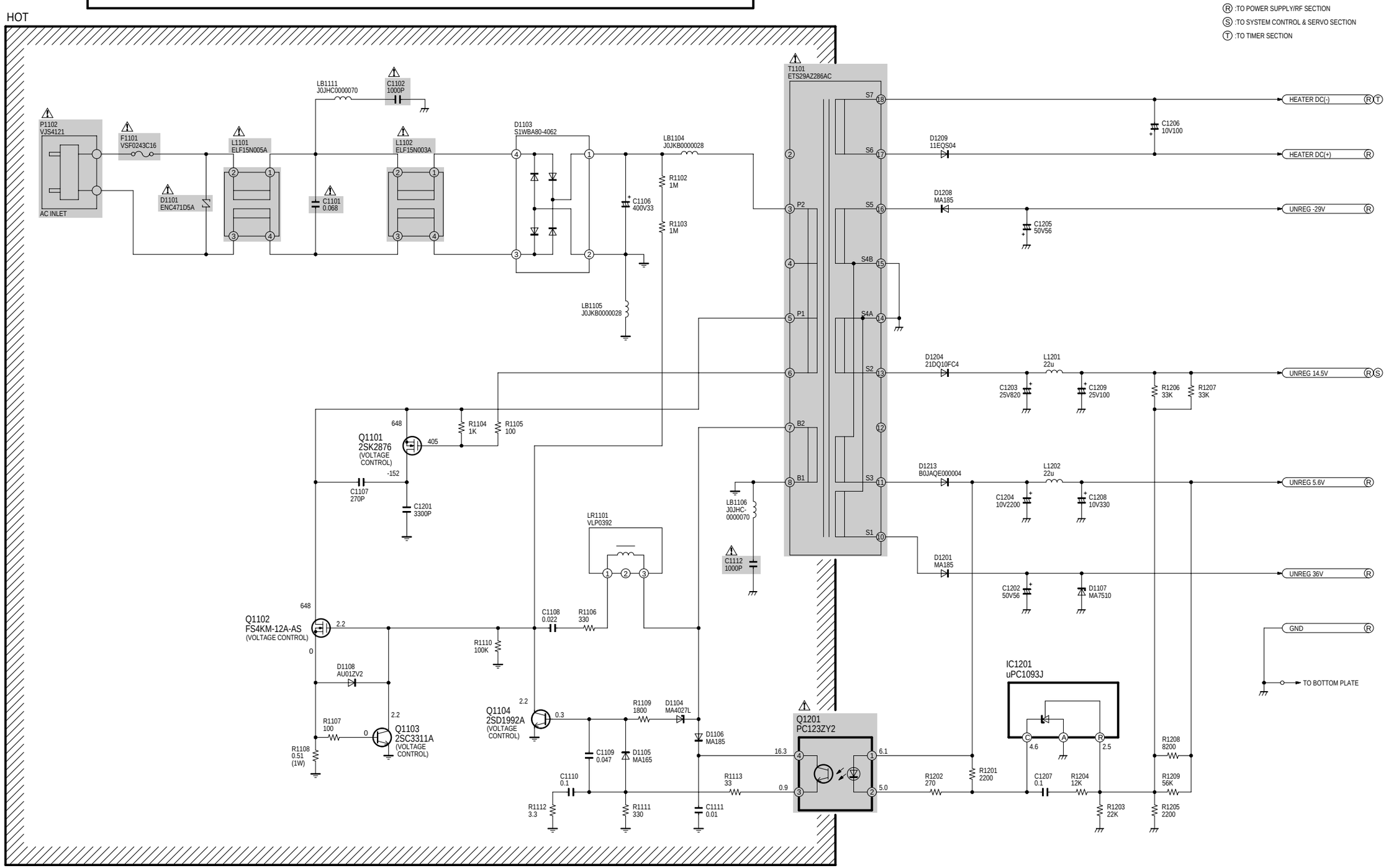
NV-HS830B/EC/EE
NICAM DECODER PACK SCHEMATIC DIAGRAM

CAUTION

THE STRIPED FRAME INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

HOT

Ⓡ :TO POWER SUPPLY/RF SECTION
Ⓢ :TO SYSTEM CONTROL & SERVO SECTION
Ⓣ :TO TIMER SECTION



NOTE1:WHEN MEASURE THE VOLTAGE OR WAVEFORM ON THE POWER TRANSFORMER CIRCUIT,SET THE GND TERMINAL OF MEASURING POINT AS FOLLOWS.
PRIMARY SIDE..... ⏚
SECONDARY SIDE... ⏚

NOTE2:THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS SHOWN THE VOLTAGE WHEN INPUT AC IS 240V.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.
NOTE:THE MEASURMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SAME TYPE.

NV-HS830EG/B/EC/EE
POWER TRANSFORMER
SECTION SCHEMATIC DIAGRAM

VIDEO MAIN SIGNAL PATH IN REC MODE
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE
AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

Ⓟ :TO POWER TRANSFORMER SECTION
Ⓢ :TO SYSTEM CONTROL & SERVO SECTION
Ⓥ :TO LUMINANCE & CHROMINANCE/AUDIO SECTION
Ⓐ :TO Hi-Fi AUDIO SECTION
Ⓣ :TO TIMER SECTION

Q1001 2SD602A (BUFFER)
QR1002 UN2212 (FIP ON/OFF CONTROL)
Q1011 2SC1959Y (12V REG)
QR1003 UN2112 (FIP Ⓛ :ON)
QR1006 UN2211 (POWER OFF Ⓗ :ON)
Q1003 2SB710A (POWER SAVE:OFF)
Q1008 2SC1959Y (5V REG)
Q1009 2SC1959Y (5V REG)
Q1010 2SC1959Y (5V REG)
Q1005 2SC1959Y (12V REG)
Q1004 2SD601A (VOLTAGE CONTROL)
IC1001 UPC1093J
Q1007 2SD602A (5V REG)
Q1002 2SC1959Y (5V REG)
Q1006 2SC1959Y (5V REG)

TU7601
TUNER UNIT
ENG47327G1:EG/EC
ENG47328G1:B
ENG47329G1:EE
1 N.SW 5V
2 AUDIO OUT
3 DATA
4 PS 5V
5 CLOCK
6 VIDEO OUT
11 CLOCK
12 DATA
14 TUNER 5V
15 SW1
16 BTL 30V
17 IF OUT
18 IF IN

DU7601
19 SW1 PK0701-1
20 SW2 PK0701-2
21 PK0701-3
22 SIF/QPSK PK0701-4
23 AFC S-CURVE PK0701-5
24 TUNER VIDEO PK0701-6
25 TUNER 5V PK0701-7
26 PK0701-8
27 GND PK0701-9
TO TV DEMODULATOR PACK PK0701(D-1)

PK7301
1 SIF/QPSK
2 GND
3 TUNER AUDIO (N)
4
5
6
7 TUNER 5V
TO DECODER PACK PK7301(F-1):EG TO NICAM DECODER PACK PK7301(D-1):B/EC/EE

PK7302
1 OSD IIC CLOCK
2 OSD IIC DATA
3
4 TUNER AUDIO (R)
5 GND
6 TUNER AUDIO (L)
TO DECODER PACK PK7302(D-1):EG TO NICAM DECODER PACK PK7302(C-1):B/EC/EE

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SAME TYPE.

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

NV-HS830EG/B/EC/EE
POWER SUPPLY/RF SECTION
SCHEMATIC DIAGRAM

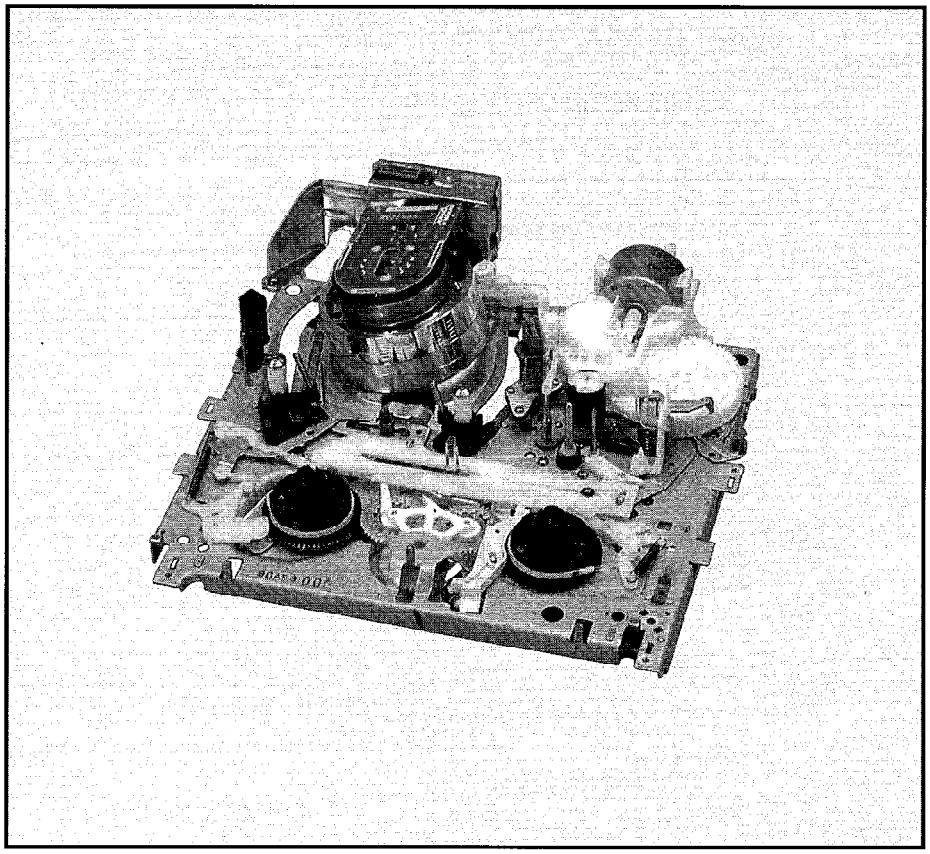
ORDER NO. VRD9612M129

Service Manual

Video Cassette Recorder

Panasonic VHS

Z-MECHANISM CHASSIS



INTRODUCTION

The Z-Mechanism chassis are built in several Panasonic VHS Video Cassette Recorders from NV-SD series in 1996.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

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1. OUTLINE OF Z MECHANISM

1-1. The tape transport path

(1) Mechanism Chassis

Aluminium Chassis has been changed to sheet metal (Thickness: 1.2 mm).

(2) Capstan position (Cassette-in method/Capstan-in method)

The Tape does not touch the Cassette tape so that the rationalization has been promoted such as Reel gear pinch up/down mechanism has been deleted.

(3) Deletion of P1 post

FE Head has been installed Limiter so that P1 post has been deleted.

(4) A/C Head base combined with P4 post

A/C Head has been combined with P4 post on the same base.

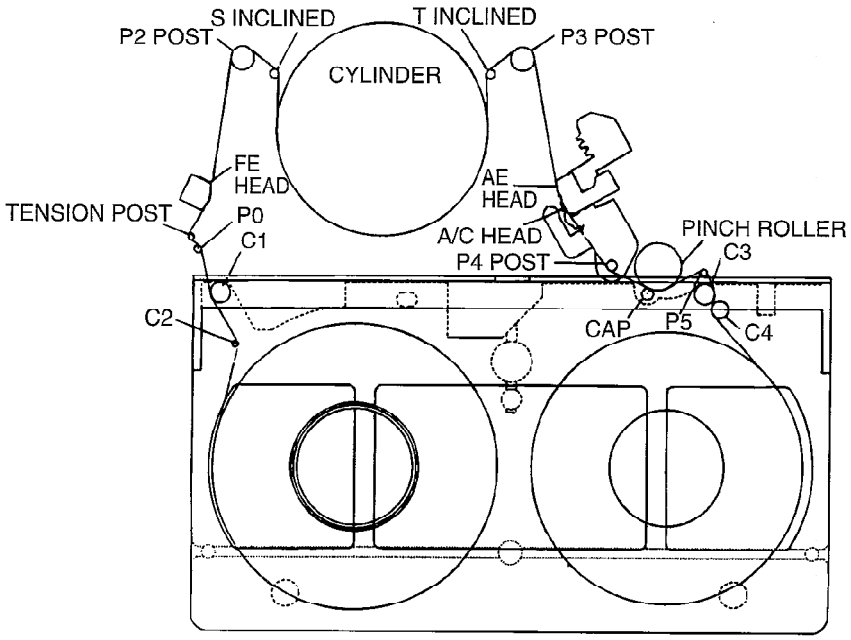
(5) Change of A/C head base type

The change of the angle winding the tape on A/C head has been reduced by the construction of A/C head base has been changed from the revolution type to slide base type.

(6) Improvement of P5 post

P5 post operation has been changed by non-adjustable of the Height and the Tilt adjustment so that the specification has been improved.

Z Mechanism tape transport path in REV mode



1-2. Cassette holder unit

(1) Cassette-in operation

The Rack drive arm drives Main Cam gear by inserting the cassette tape. Consequently, Position switch detects the cassette-in mode so that Loading motor drives. The mode goes to the Stop mode from the Cassette-in through the Loading mode.

① The parts quantity reduction of Cassette holder unit.
(Z Mechanism: 21 pieces, K Mechanism: 36 pieces)
a. Release lever has been installed in Right Side Plate.
b. Cassette guide has been installed in Front Panel unit.
c. Safety lever spring is made by the resin.
d. Opener lever has been changed into the single opener type.
e. One side of Side Plate unit is hung on Chassis in order to fix it.

② Improvement of the cassette insertion
(The force of the cassette insertion Z Mechanism: Approximately 400gm.,
K Mechanism: Approximately 600gm.)
The tooth pitch of Worm gear which has been extended against the previous model, is located on the Motor so that Worm gear can be reversed. Consequently, the Motor rotates before the insertion spring (the combined spring) is working when the cassette tape is inserted, so that the repelled force of the insertion spring has been reduced as differing from the present model.

③ Small-sized Cassette holder unit (Thinned unit)
a. The Wiper arm method which has been adopted, assigned Wiper arm between Cassette Holder Plate and Side Plate so that the small-sized of the width has been realized.
b. To prevent the increment of parts quantity such as Safety lever is used for Pre-open mechanism shown in the present model, and the small-sized unit has been realized by inclining one portion of the L groove in Side Plate.
c. The part of driving change-over is located in the nearest to the center of Reel so that the depth size is compacter.

1-3. Reel brake

(1) Supply Reel Brake is used for Tension Regulator which is composed of the conventional Main brake and the soft brake function.

(2) Take-up Reel Brake is used as Band Brake unit in order to correspond with Supply Reel Brake.

※ Tension Regulator performance:
This is composed of Tension regulator and brake. The tape always is given the tension against the advance direction by Tension band.

(3) Construction of Supply reel tension regulator
Comparison of the construction with the conventional model

	Z Mechanism	K Mechanism
Tension Arm Shaft Bearing construction	Resin	Tension arm
Tension Band	Felt less Lumiller	Felt Lumiller
Braking method	Tension regulator	Main & soft brake

Operating mode and necessary function

Mechanism mode	Necessary function	Operation
Cassette down	Prevention of the tape slag (Soft brake)	Soft brake
Completion of Loading	Prevention of the tape slag (Soft brake)	Tension regulator
REV	Prevention of in Play mode to REV mode (Soft brake)	Tension regulator
PLAY, FF	Back tension adjustment	Same as the conventional
STOP	Main brake function	Tension regulator

(4) Construction of Take-up brake

Take-up brake is used Band brake as well as Supply brake depend on corresponding with Band brake is adopted at the Supply Side.

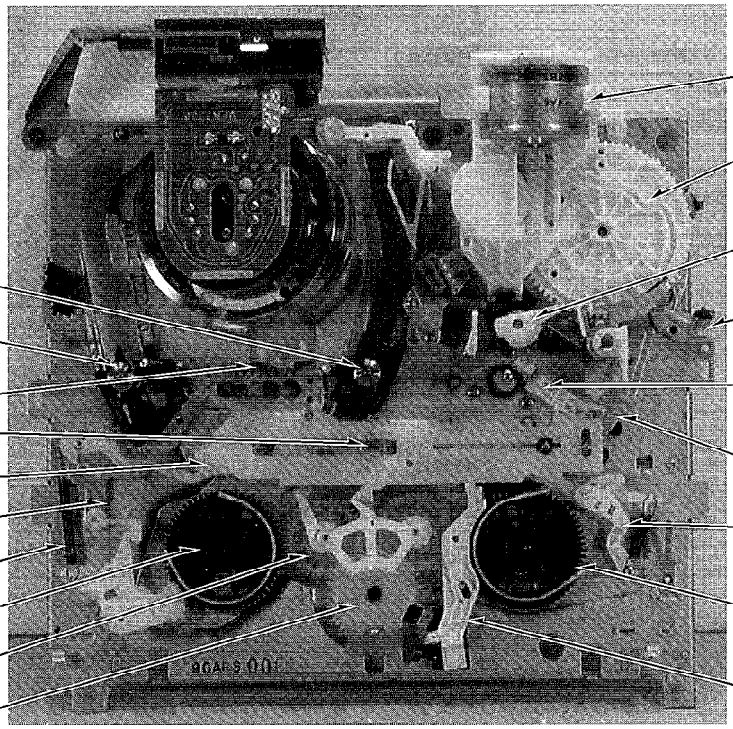
Mechanism mode	Function	Band
EJECT-MID	Soft brake	On
REV	Soft brake	On
PLAY	Release of brake	Off
STOP	Brake	On
FF/REW	Release of brake	Off

1-4. Number of Gear Phase Alignment Point and Replacement Parts

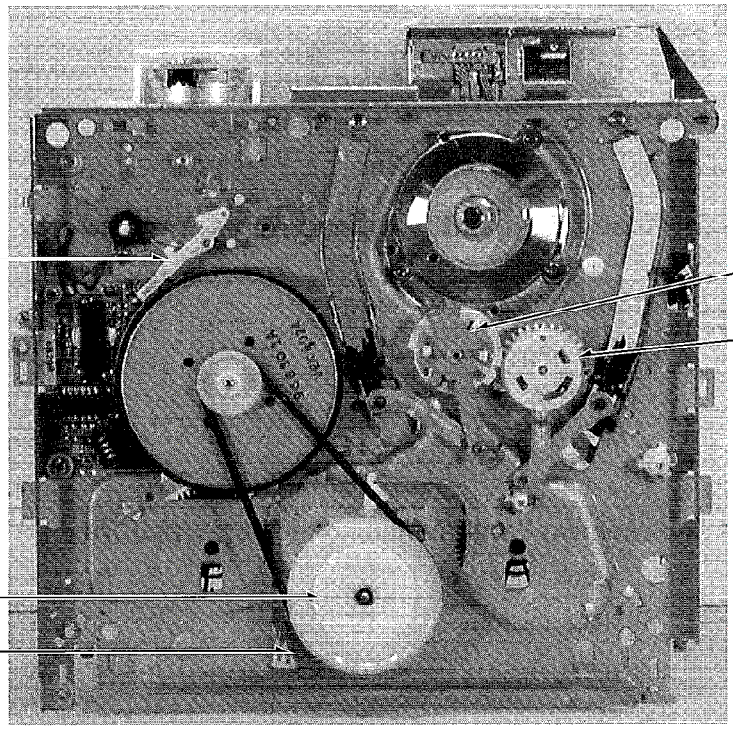
Number of Gear Phase Alignment Point	
G2 Mechanism	12 Alignment Points
G Mechanism	12 Alignment Points
K Mechanism	6 Alignment Points
Z Mechanism	4 Alignment Points
Number of Replacement Parts (including the Screw and Washer)	
G2 Mechanism	Approx.170 Pieces
G Mechanism	Approx. 150 Pieces
K Mechanism	Approx. 100 Pieces
Z Mechanism	Approx. 70 Pieces

Z Mechanism Components

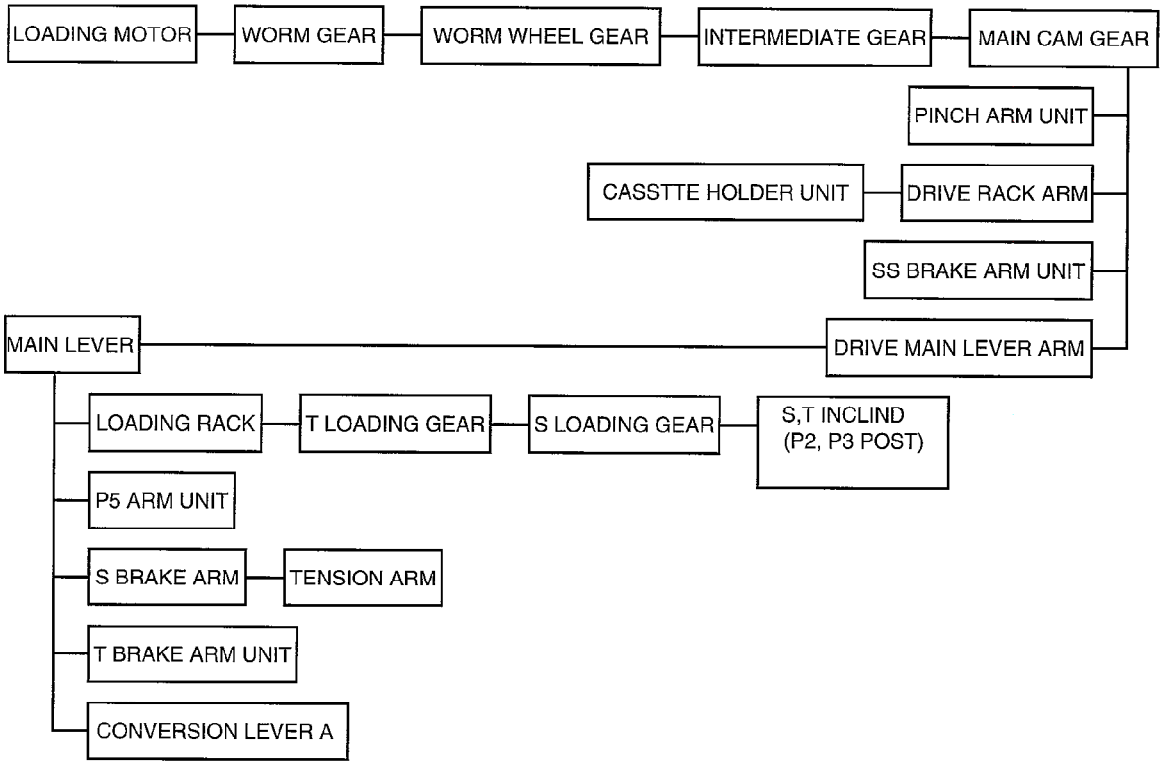
TOP VIEW

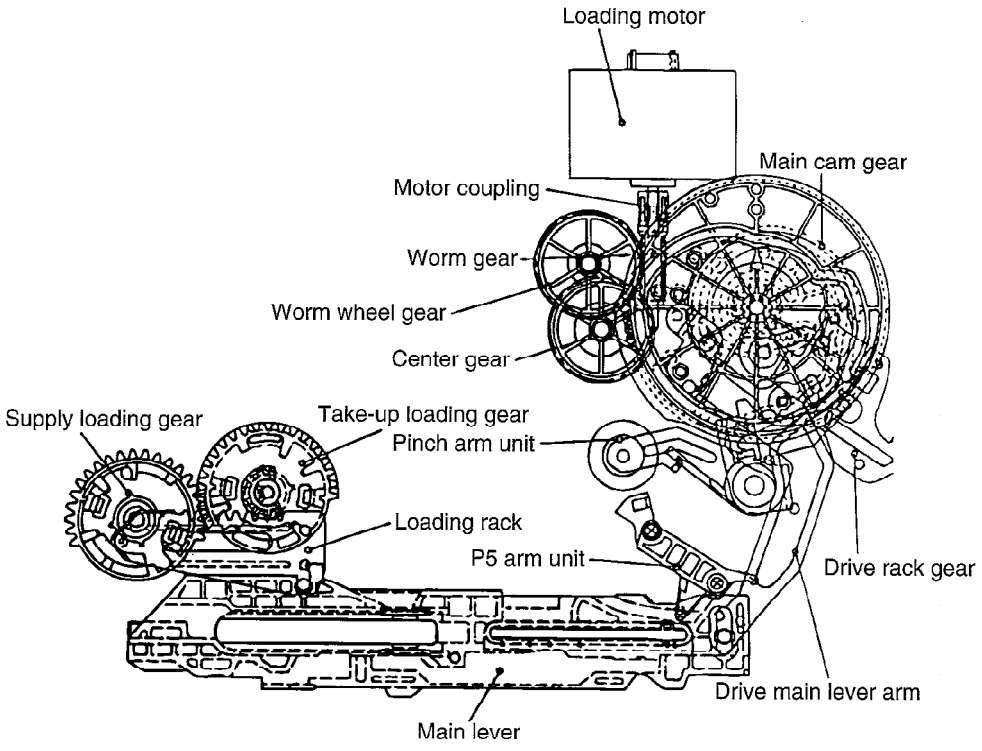


BOTTOM VIEW



FLOW CHART OF LOADING MECHANISM





2. REMOVAL OF CASSETTE TAPE

There are 2 ways to remove a cassette tape.

2-1. Removal of compulsory loading

(1) Press FF, REW and EJECT buttons simultaneously and set the Service Mode 7

(2) Press STOP button in order to unload the mechanism. (Pay an attention of tape slag)
Service Mode Indication :
7 ※※ ※※ (STOP)→7 00 ※※ (EJECT)

2-2 Removal of manual operation of Main cam gear

(1) Disconnect the AC power cord and remove Top Panel.

(2) Rotate Main cam gear to the clockwise and unload the mechanism (Tape is remaining) (Fig. A1).

TOP VIEW

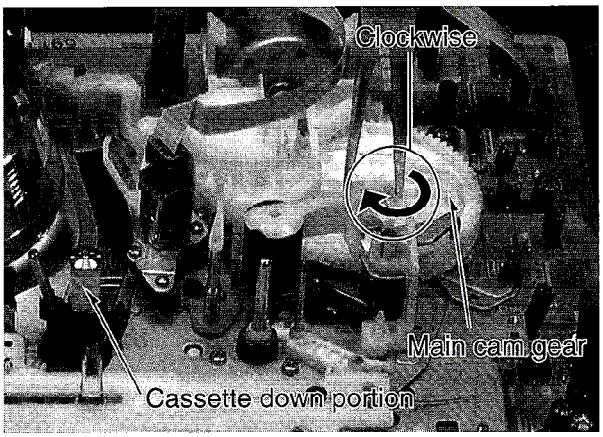


Fig. A1

(3) Rotate the Pole of Capstan motor to the clockwise from the bottom in order to remove the tape slag (Fig. A2).

BOTTOM VIEW

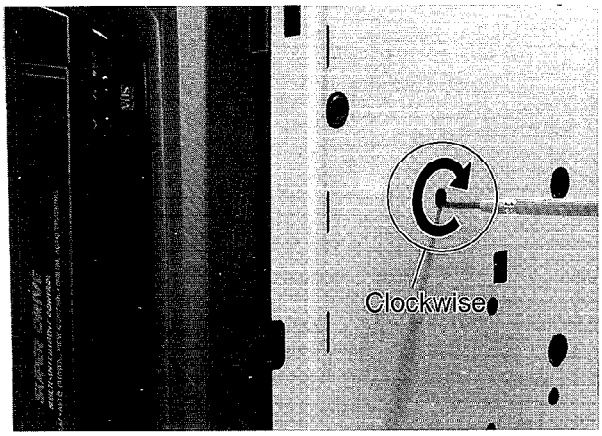


Fig. A2

(4) Rotate Main cam gear to the clockwise in order to eject the cassette tape.

3. REMOVAL OF CASSETTE HOLDER UNIT & MECHANISM CHASSIS

3-1. Removal of Cassette holder unit

(1) Remove Top panel and Front panel unit (Fig. B1)

TOP VIEW

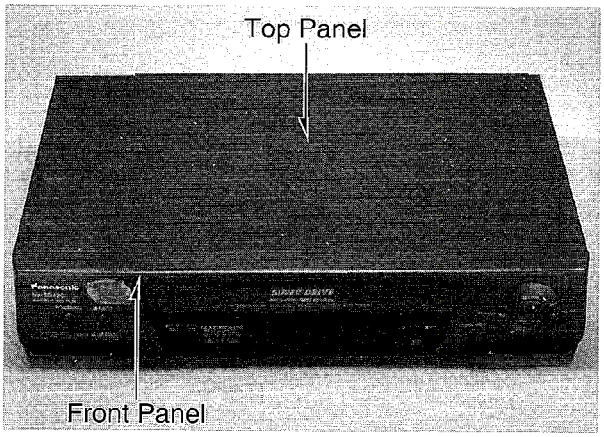


Fig. B1

(2) Remove Top plate

Remove 4 tabs fixing Top plate and remove Top plate (Fig. B2).

※ 4 Tabs should be removed softly duc to they are fragile.

TOP VIEW

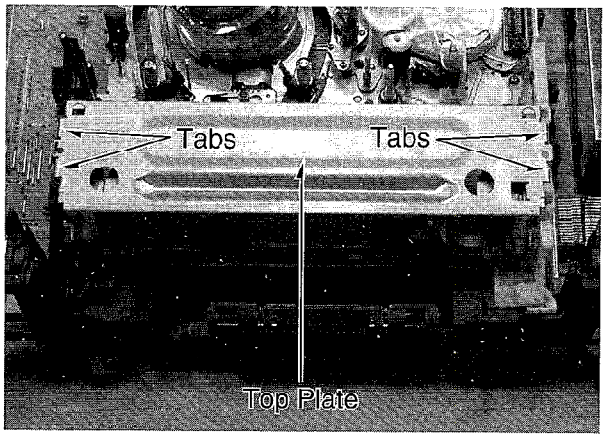


Fig. B2

(3) Remove Casscttc Holder Plate

Keep pressing 2 stoppers on Cassette holder Plate and Press Cassette holder plate to the rear and remove it from Left and Right Side Plate (Fig. B3).

TOP VIEW

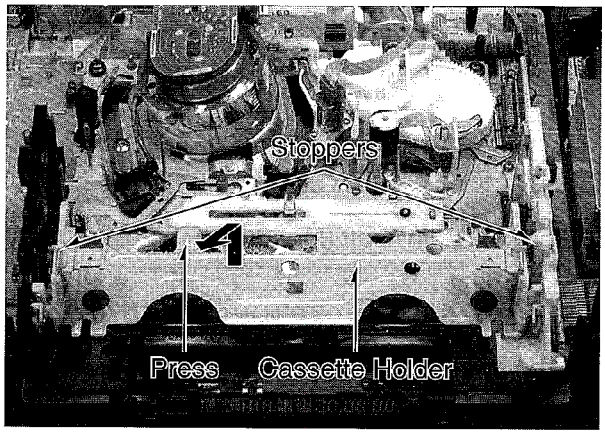


Fig. B3

(4) Remove Left and Right Side Plate

Remove Conjuction spring of Drive gear.

Remove 3 red screws, 3 tabs and remove Left and Right Side Plate (Fig. B4, B5).

TOP VIEW

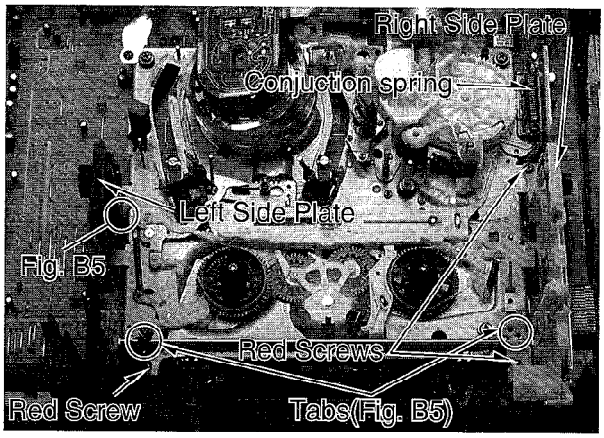


Fig. B4

TOP VIEW

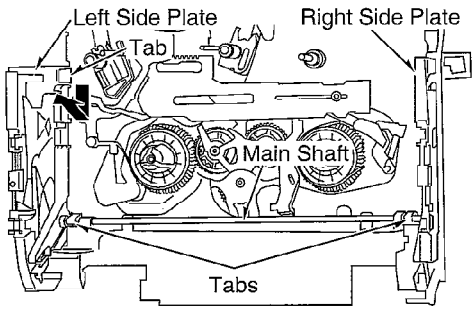


Fig. B5

(5) Remove Main shaft (Fig. B6)

TOP VIEW

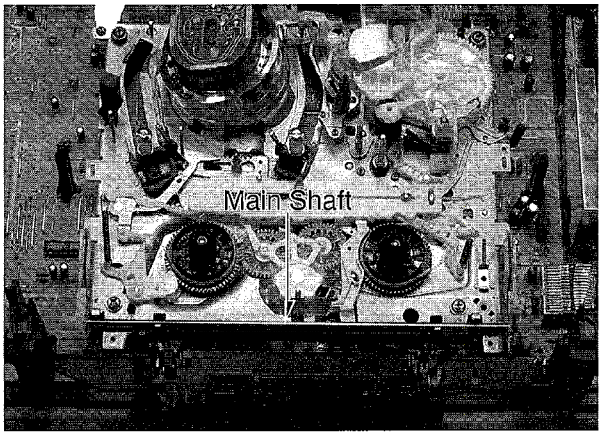


Fig. B6

3-2. Removal of Mechanism chassis

(1) Remove Mechanism chassis

Disconnect P3001, P2502 and P4001. Remove 5 screws (3 red screws and 2 gold screws) on Mechanism chassis and take out Mechanism chassis (Fig. B7).

TOP VIEW

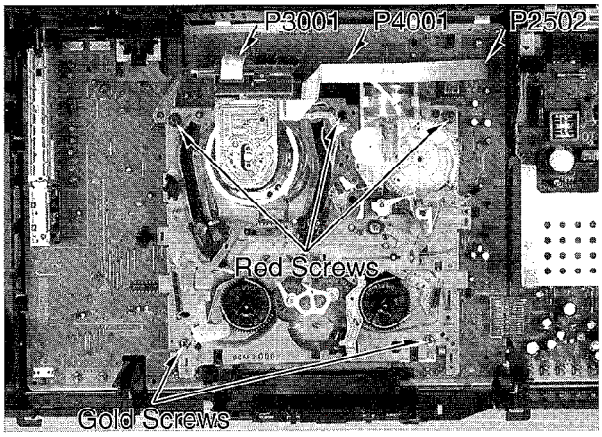


Fig. B7

4. DISASSEMBLY/ASSEMBLY METHOD FOR MECHANISM

4-1. Disassembly of mechanism

1. Removal of Pinch arm

   Unlock the tab (opener space). Remove Opener space and Pinch arm (Fig. C1).

2. Removal of Loading motor unit

   Unlock 3 tabs and remove Loading motor unit (Fig. C1 C2)

   2 tabs of them located on the bottom of the Mechanism (Fig. C2).

TOP VIEW

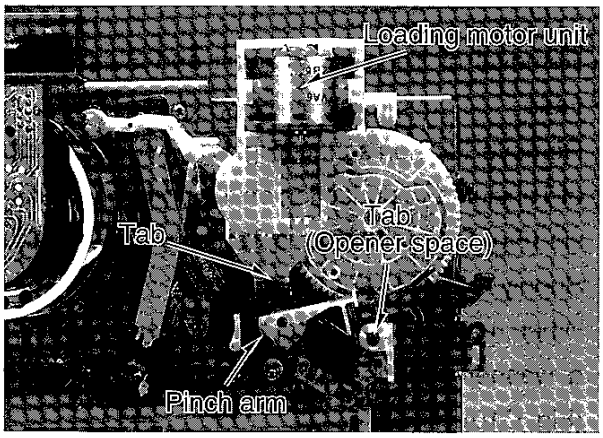


Fig. C1

BOTTOM VIEW

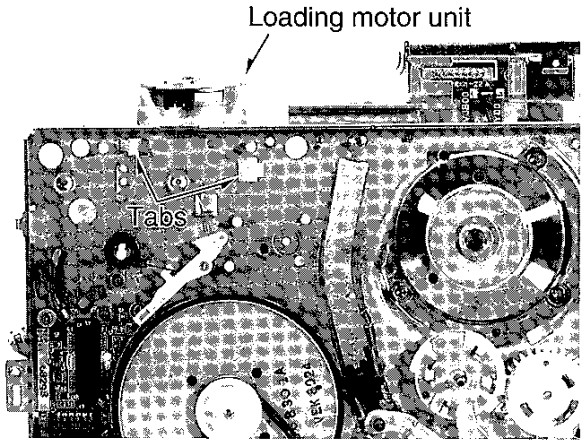


Fig. C2

3. Removal of Main cam gear

   Remove Snap washer located on the bottom of Chassis by using retaining ring remover (Fig. C3) and remove Main cam gear (Fig. C4).

BOTTOM VIEW

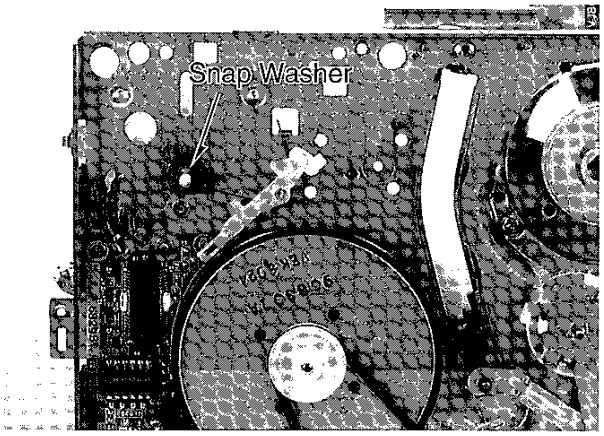


Fig. C3

TOP VIEW

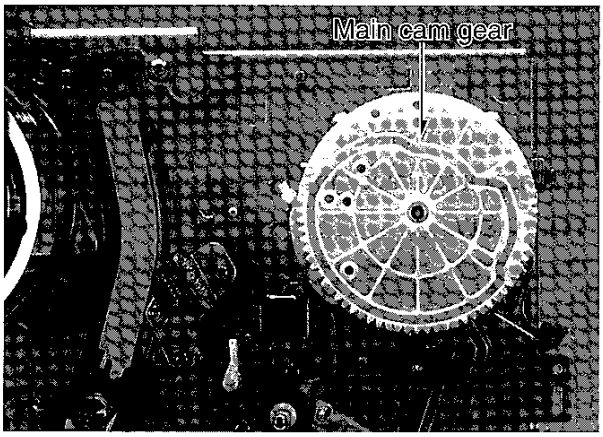


Fig. C4

4. Removal of Drive rack arm

Rotate Drive rack arm to the counterclockwise and remove it (Fig. C5)

TOP VIEW

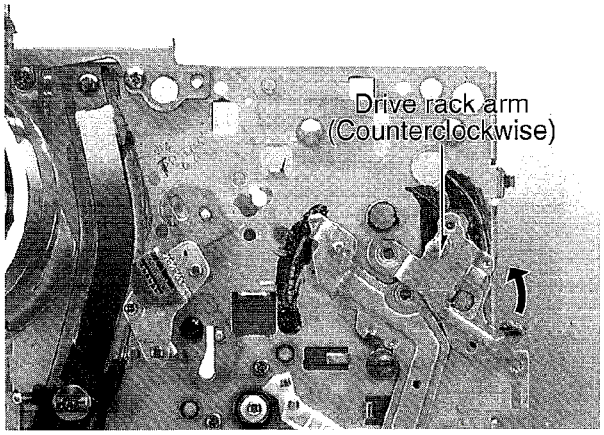


Fig. C5

5. Removal of Main lever, P5 arm and Conversion lever A

Removal cut washer located on the main lever. Unlock 2 tabs of Prism LED and 1 tab on the projection of Chassis while keep lifting the left side of Main lever, and remove Main lever, P5 arm and Conversion lever A (Fig. C6).

※ It is easier to unlock the tabs by using a tweezer.

TOP VIEW

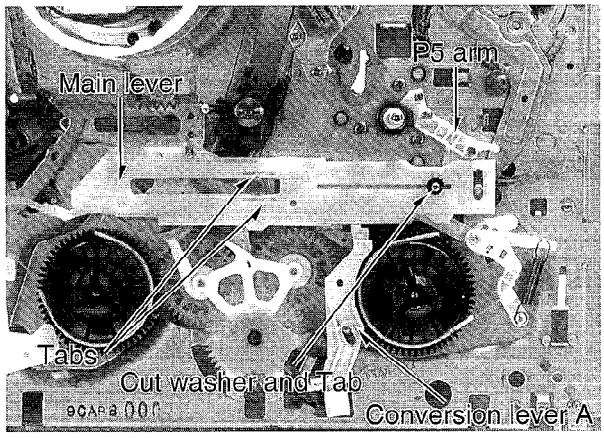


Fig. C6

6. Removal of Drive main lever arm

Rotate Drive main lever arm to the counterclockwise and remove it (Fig. C7).

TOP VIEW

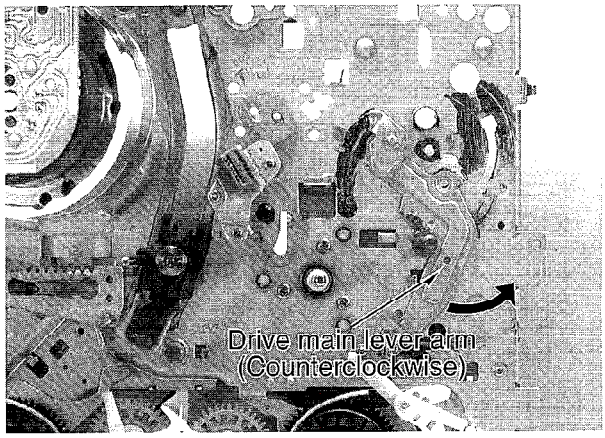


Fig. C7

7 Removal of Tension arm unit and Supply reel table

Remove Tension spring (Fig. C8). Unlock the tab of Tension arm projection on the bottom of Chassis (Fig. C9) and remove Tension arm unit and Supply reel table (Fig. C8).

※ When remove supply reel table, be sure whether a washer attaches on Supply reel table shaft (Fig. C10).

TOP VIEW

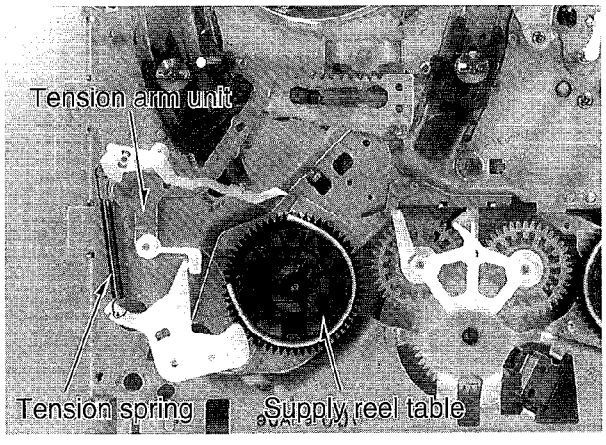


Fig. C8

BOTTOM VIEW

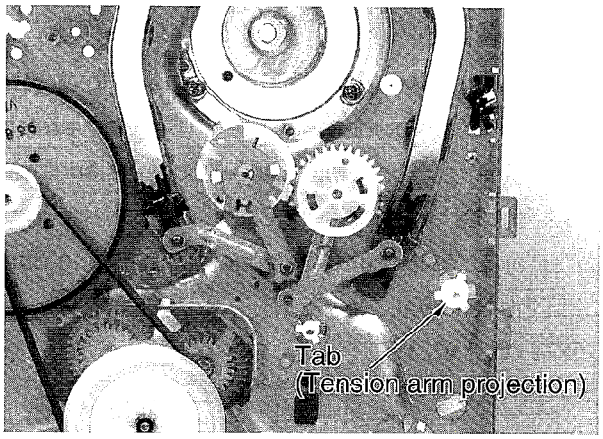


Fig. C9

TOP VIEW

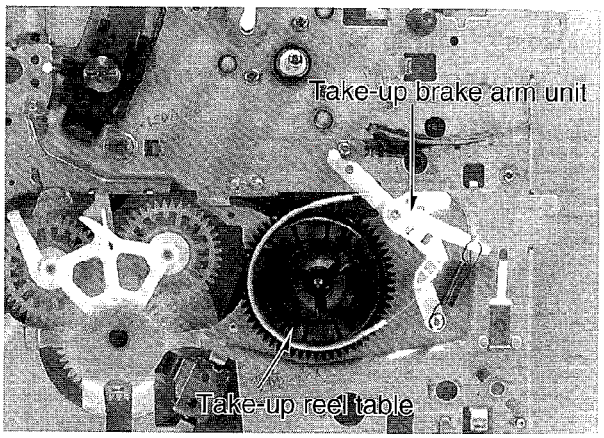


Fig. C11

SIDE VIEW

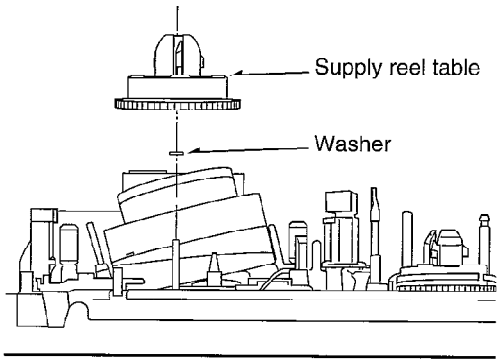


Fig. C10

8 Remove of Take-up brake arm unit and Take-up reel table

Unlock the tab of Take-up brake arm unit from the bottom of Chassis (Fig. C12). Remove Take-up brake arm unit and Take-up reel table (Fig. C11).

※ When remove Take-up reel table, be sure whether a washer attaches on Take-up reel table shaft (Fig. C13).

BOTTOM VIEW

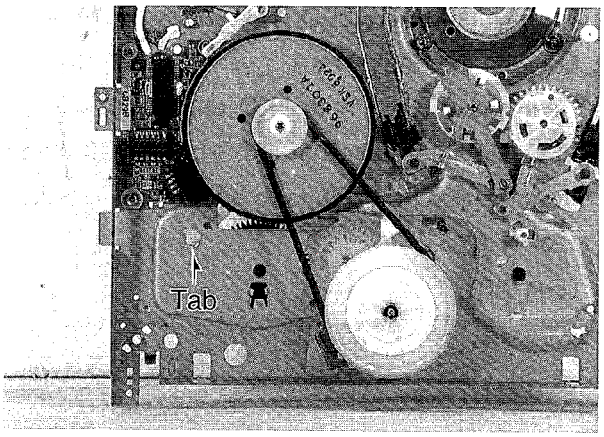


Fig. C12

SIDE VIEW

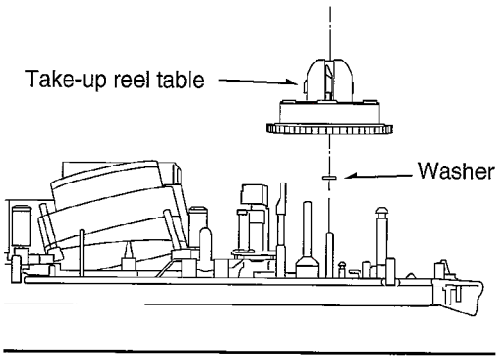


Fig. C13

9. Removal of Take-up & Supply loading arm
Unlock the tab and remove Take-up and Supply loading arm (Fig. C14).

BOTTOM VIEW

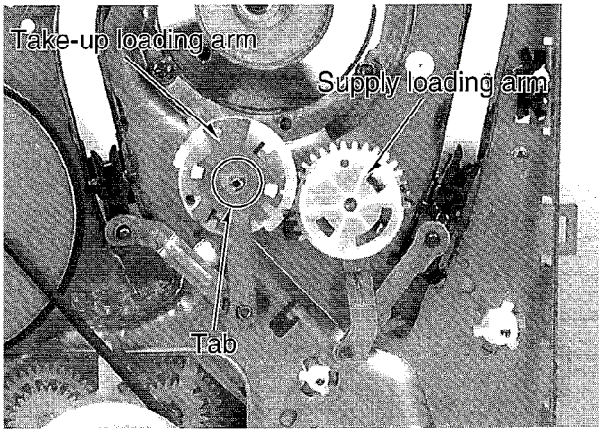


Fig. C14

10 Removal of Prism LED, Take-up & Supply shaft holder and Loading rack
Push the tab of Prism LED and remove Prism LED Remove Take-up and Supply shaft holder from the groove of Chassis and remove Loading rack (Fig. C15).

TOP VIEW

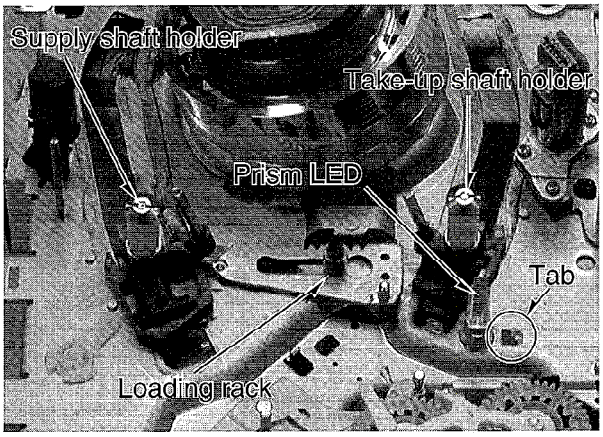


Fig. C15

11. Removal of Center clutch, Conversion gear spring, Conversion gear, Conversion lever B and Idler arm unit
Remove the Belt and the Cut washer (Fig. C16).
Remove Center clutch (Fig. C16) Conversion gear spring, Conversion gear, Conversion lever B and Idler arm unit (Fig. C17).

※ Pay an attention of Conversion gear spring during the removal.

BOTTOM VIEW

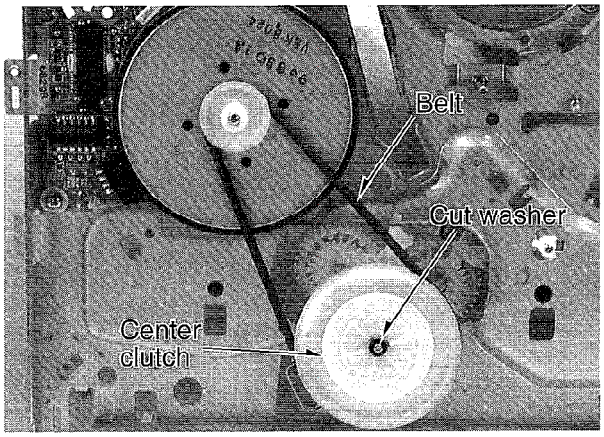


Fig. C16

BOTTOM VIEW

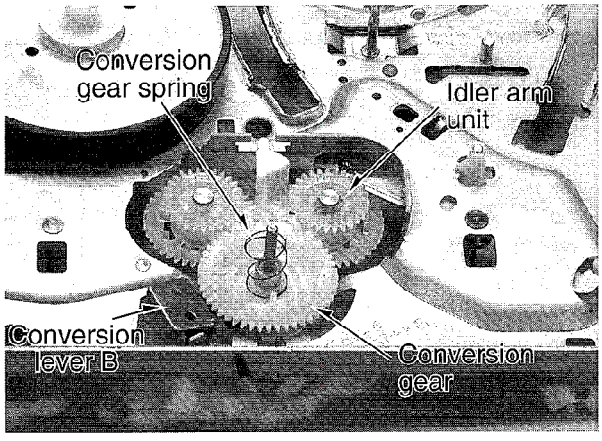


Fig. C17

12. Removal of Capstan unit

Remove 3 gold screws (Fig. C18).

Remove 2 gold screws on the bottom of Chassis (Fig. C19)

Keep moving SS brake arm and remove Capstan unit.

TOP VIEW

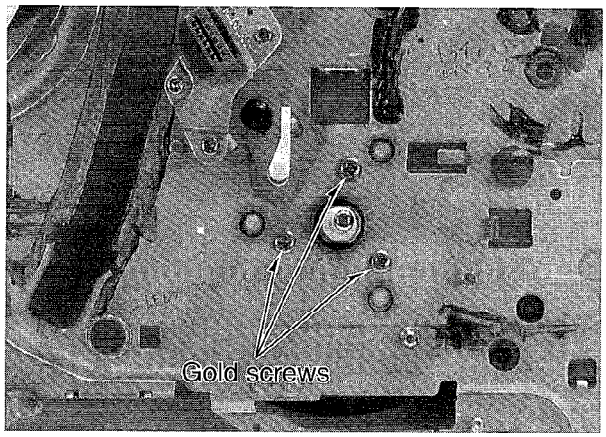


Fig. C18

BOTTOM VIEW

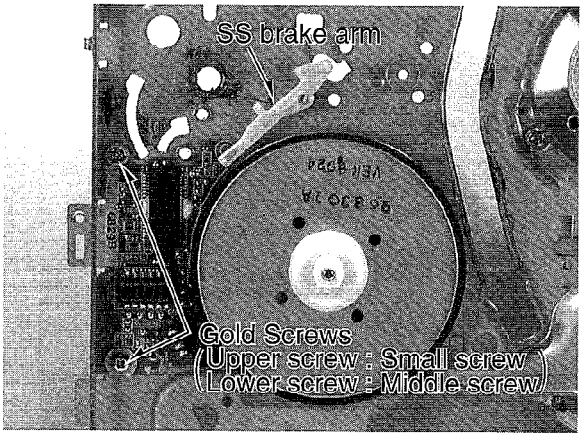


Fig. C19

13. Removal of Cylinder unit

Removal red screw (Fig. C20).

Remove 3 gold screws on the bottom of Chassis and remove Cylinder unit (Fig. C21).

TOP VIEW

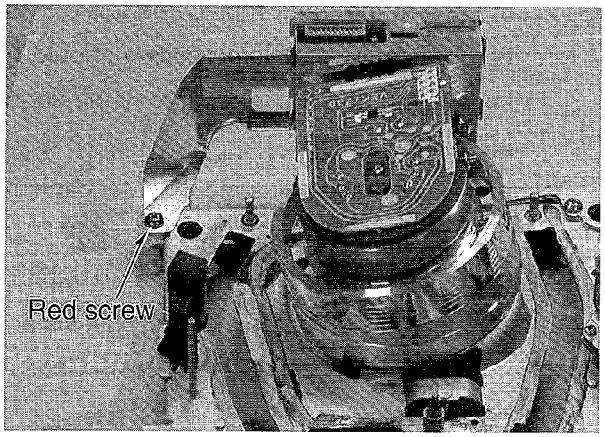


Fig. C20

BOTTOM VIEW

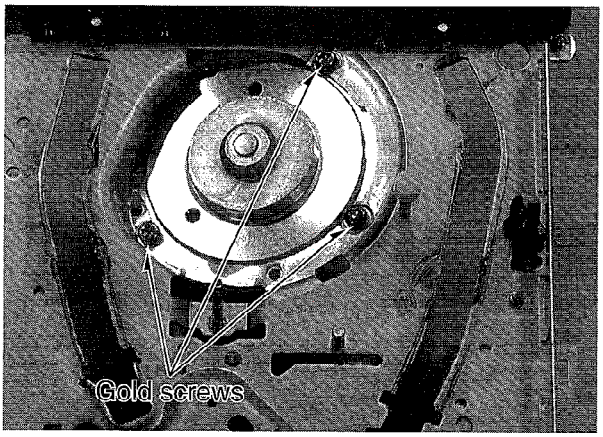


Fig. C21

4-2. Assembly and phase adjustment of mechanism

The gear phase alignment has been performed in the EJECT position and it is crucial for the Z Mechanism to operate correctly.

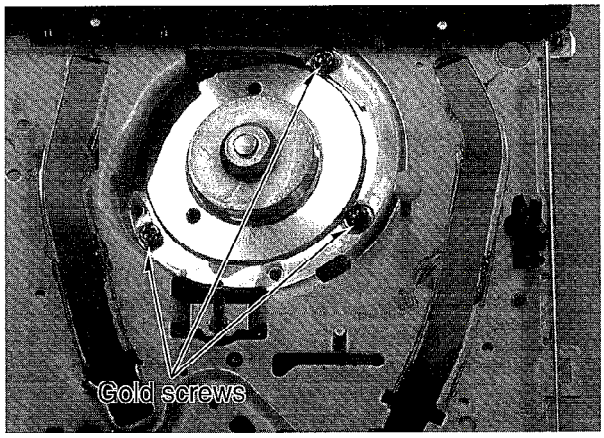
NOTE: In case of the parts replacement like Position switch, Mechanism position should be set to Eject position in order to fit the phase of Position switch

1 Assembly and phase adjustment of Mechanism

(1) Assembly of Cylinder unit

Cylinder unit should be fixed by 3 screws (GOLD) from the bottom side of Mechanism chassis and red screw on the top side of Mechanism Chassis (Fig. E1, E2).

BOTTOM VIEW



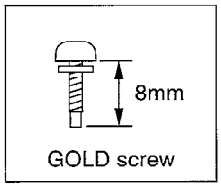
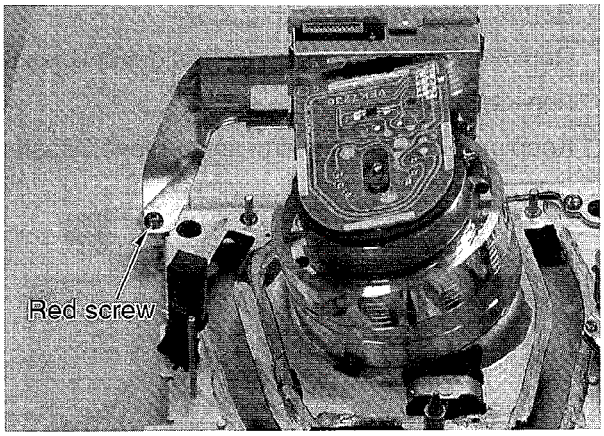


Fig. E1

TOP VIEW



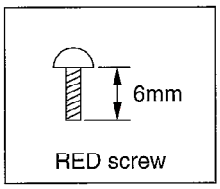
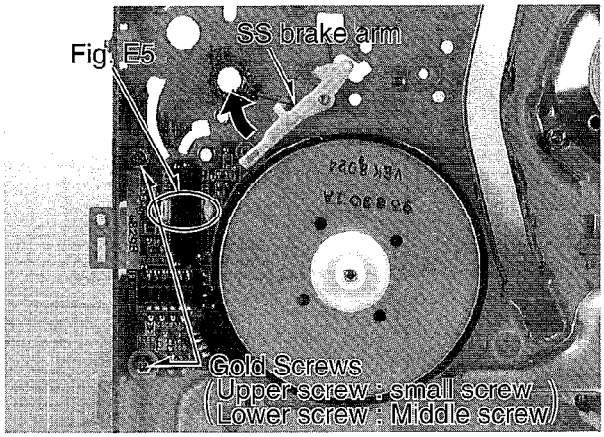


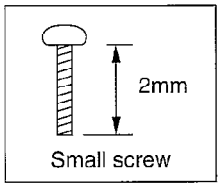
Fig. E2

(2) Assembly of Capstan unit

Move SS brake arm in the direction of arrow (see Fig. E3) and capstan unit should be fixed by 2 screws (GOLD) on the bottom side of Mechanism chassis and 3 screws (GOLD) on the top of Mechanism chassis (Fig. E3 E4)

BOTTOM VIEW





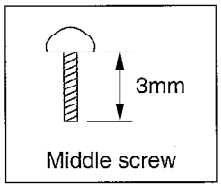
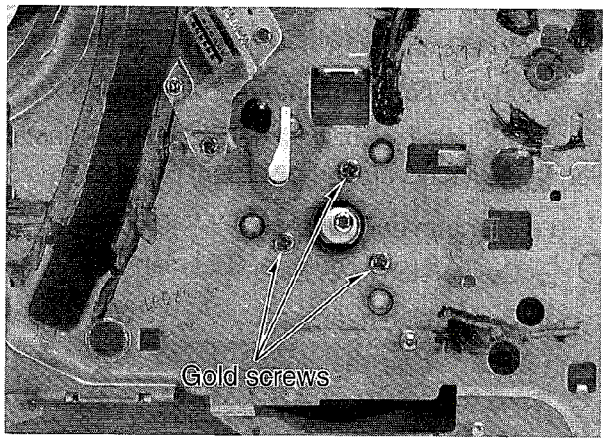


Fig. E3

TOP VIEW



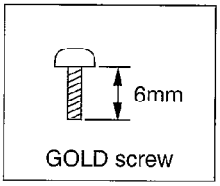


Fig. E4

NOTE: Replacement of Capstan unit and Procedure of applying the silicone grease.

REPLACEMENT OF CAPSTAN UNIT

In case of replacement of the Capstan Unit the Silicone grease have to be applied between the Mechanism chassis and the Drive IC by the following procedure.

Silicone grease No. VFK1301 for radiation of the Drive IC

Silicone grease is used for the radiation of the Drive IC. The heat occurred on the IC is radiated to the Mechanism chassis through the grease. In case of the incomplete radiation, the safety circuit operates depending on the rise of the temperature and it possibility stop the operation of the Drive IC

PROCEDURE OF APPLYING THE SILICONE GREASE

① There is a cut-out part at the Drive IC mounting position and the bottom of the IC can be seen from the cut-out part Apply the Silicon grease to whole the cut-out part of IC as shown in Fig. E5-1 so that the grease is piled 0 3–0 5 mm from the surface of the C B A

② Next, from the component side of the C.B A., apply the Silicon grease so that the grease is piled at the metal of the center of the IC as shown in Fig. E5-2.

Fig. E5-1. Apply the Silicon grease so that the grease is piled 0.3 0.5 mm from the surface of the C.B.A.

Fig. E5-2. Apply the Silicon grease at the metal of the center of the IC.

SIDE VIEW

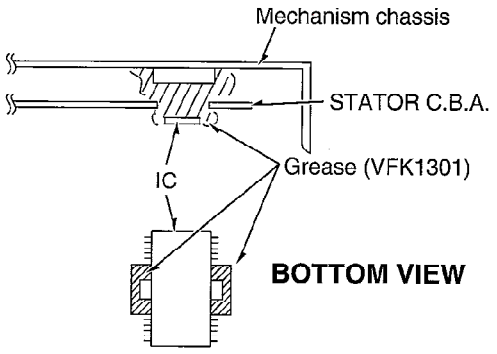


Fig. E5

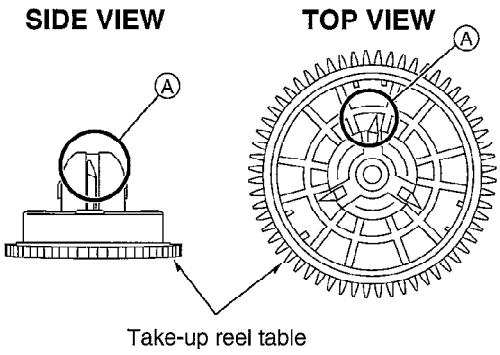


Fig. E11

(7) Assembly of Supply reel table and Tension arm unit

Install washer (Fig. E13) and Supply reel table. Insert Tension arm unit to Tension arm projection and hang Tension spring with Supply spring arm projection (Fig. E12).

※1 Pay an attention of Position of the Supply spring arm.

NOTE: The shape between portion A for Take-up reel table and portion B for Supply reel table is different.

Therefore, confirm the shape of portion A and B before mounting reel tables. If Take-up reel table has been confused with Supply reel table and they have been installed, the trouble of reel table rotation slip happens (Fig. E14).

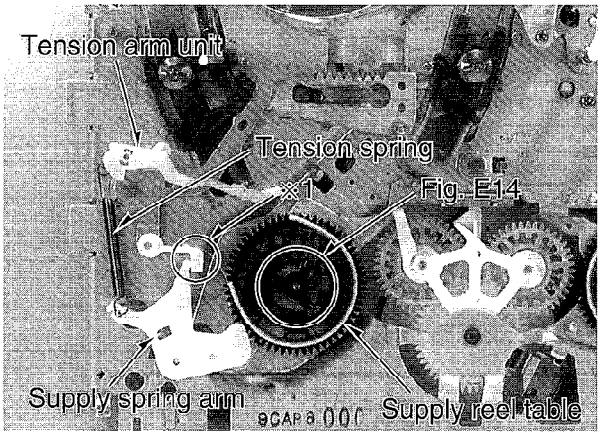


Fig. E12

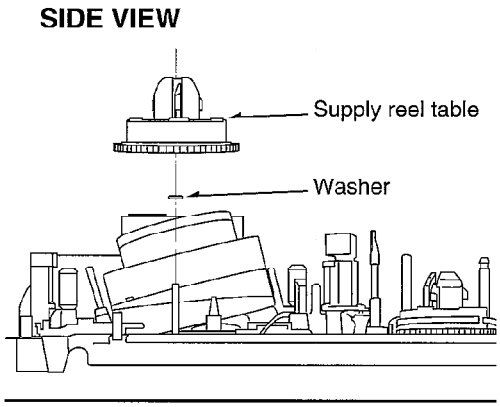


Fig. E13

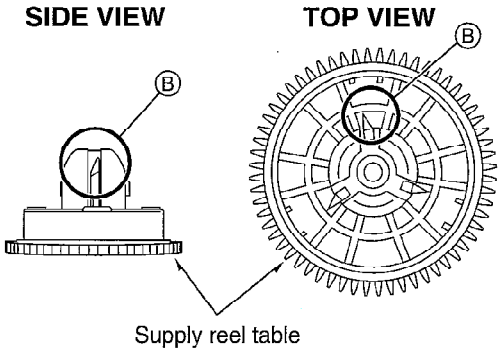


Fig. E14

(8) Assembly of Drive main lever arm

Install Drive main lever arm so that Drive main lever arm fits to the groove of Chassis.

And rotate Drive main lever arm to the clockwise in order to adjust the phase between the hole of the position fixture and the penetration hole of Chassis (Fig. E15).

TOP VIEW

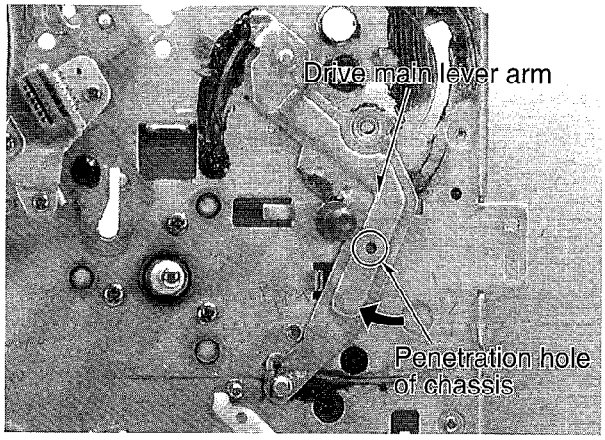


Fig. E15

(9) Assembly of Conversion lever A, P5 arm and Main lever

Install Conversion lever A and P5 arm (Fig. E16, E17).

Adjust the phase of Main lever so that Main lever fits the projection of Loading rack.

Main lever has to be locked at the projection of Chassis by 2 tabs of Prism LED (Fig. E16).

※ Conversion lever A, P5 arm, Supply brake arm unit and the projection of Take-up brake arm have to be installed to the groove under the Main lever (Fig. E18).

TOP VIEW

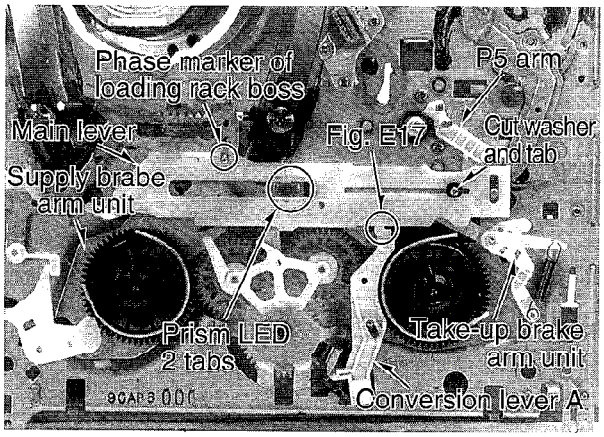


Fig. E16

TOP VIEW

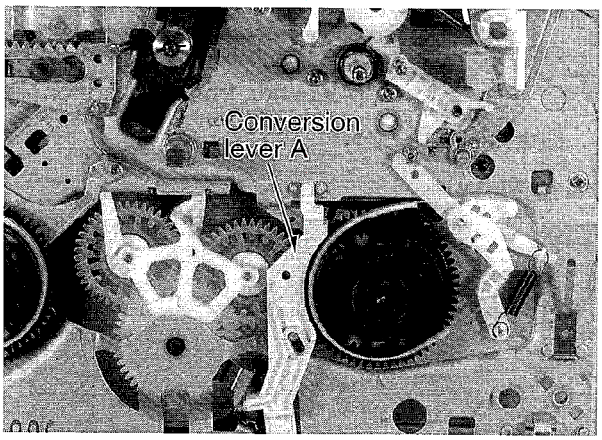


Fig. E17

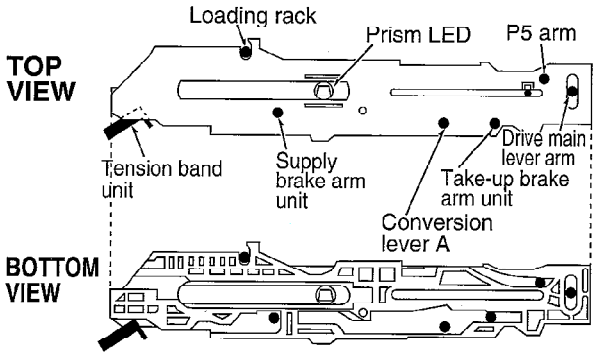


Fig. E18

(10) Assembly of Drive rack arm

Install Drive rack arm so that Drive rack arm fits the groove of Chassis and rotate it to the clockwise in order to fit the penetration hole of Chassis (Fig. E19)

TOP VIEW

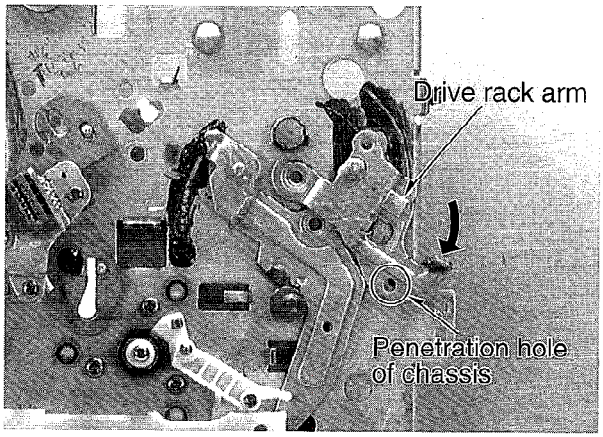


Fig. E19

(11) Assembly of Main cam gear

Install Main cam gear so that Main cam gear fits the penetration hole of Chassis (Fig. E20) and fix it by the snap washer from the bottom of Chassis (Fig. E21).

TOP VIEW

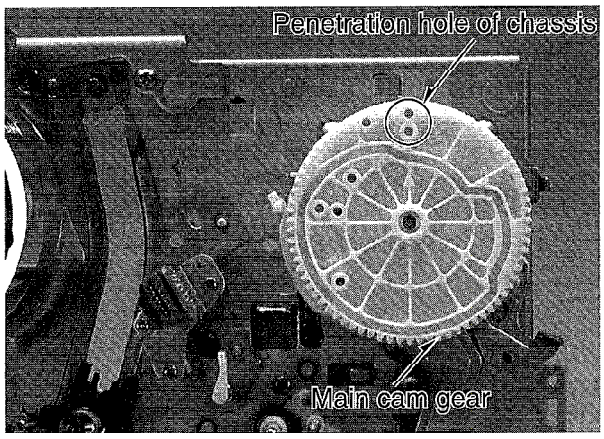
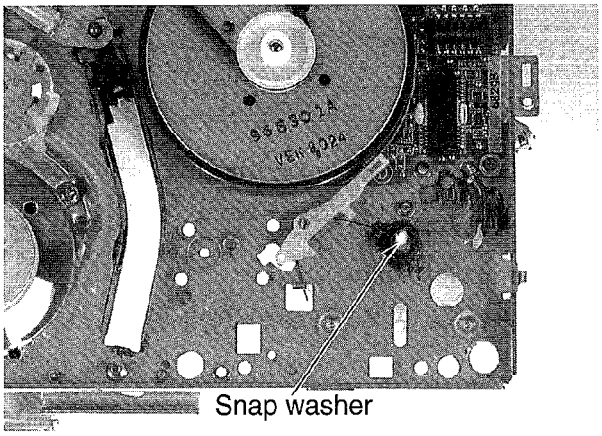


Fig. E20

BOTTOM VIEW



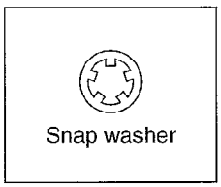


Fig. E21

(12) Assembly of Loading motor unit

Install Loading motor unit so that Loading motor unit fits the groove of Chassis (Fig. E22).

(13) Assembly of Pinch arm

Put Pinch arm together and install Opener space to fix Pinch arm (Fig. E22).

TOP VIEW

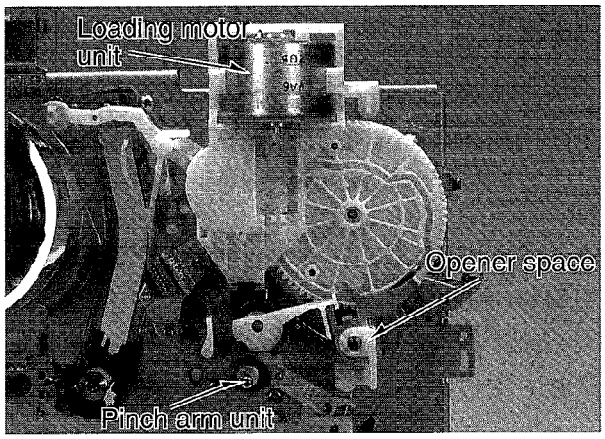


Fig. E22

4-3 Assembly of mechanism chassis

1 Assembly of Mechanism chassis

(1) Adjust the phase of Position switch in Main C B A..

Rotate Position switch until the click point. The projection of Position switch should be set to just above (Fig. F1)

TOP VIEW

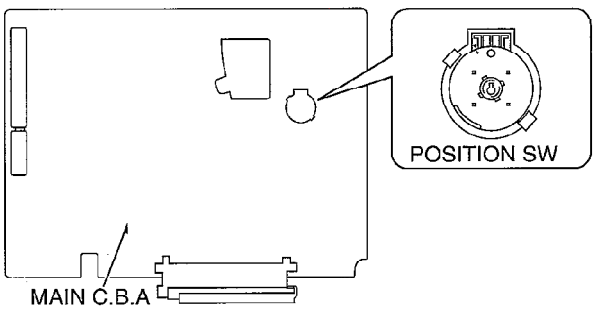


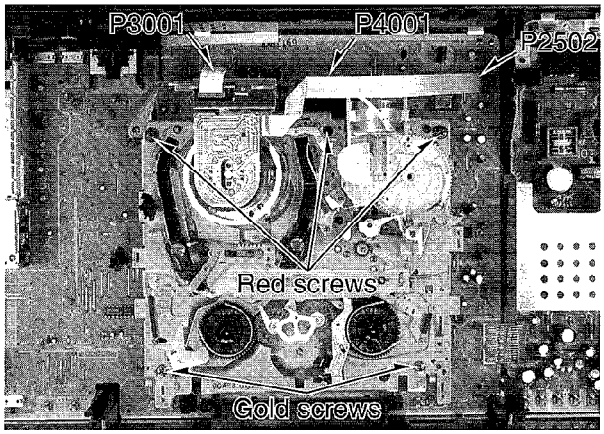
Fig. F1

(2) Assembly of Mechanism chassis

Put Mechanism chassis on Main C.B.A. and fix it by 5 screws (3 red screws and 2 gold screws).

Connect P3001, P2502 and P4001 (Fig. F2)

TOP VIEW



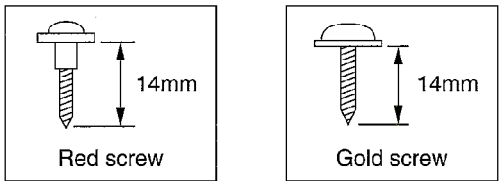


Fig. F2

※ The red screws has a gap among the chassis. Therefore be careful not to tighten too much.

2. Assembly of Cassette holder unit

(1) Assembly of Main shaft

Install Main shaft so that Main shaft fits the groove of Chassis (Fig. F3)

TOP VIEW

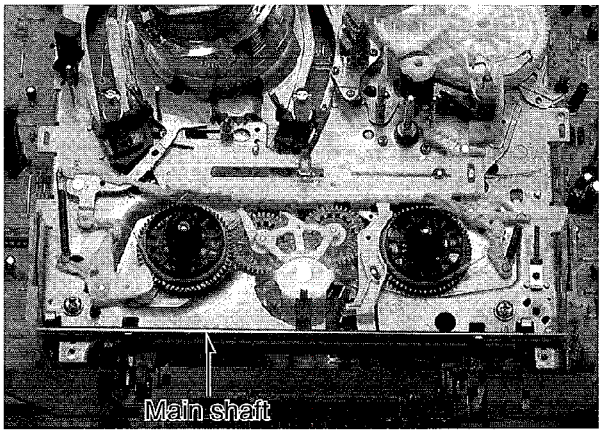


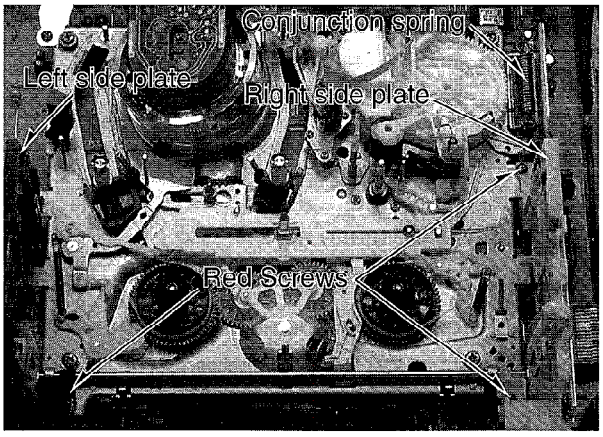
Fig. F3

(2) Assembly of Left & Right side plate

Install Left side plate so that Left side plate fits the groove of Chassis and fix it by the red screws.

After adjustment the phase of waper arm and Drive rack (Fig. F5), install Right side plate so that Right side plate fits the groove of Chassis and fix it by 2 red screws. Hang Conjunction spring on the projection of Drive rack arm (Fig. F4, F5).

TOP VIEW



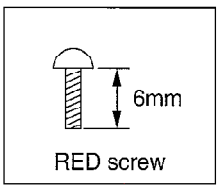


Fig. F4

SIDE VIEW

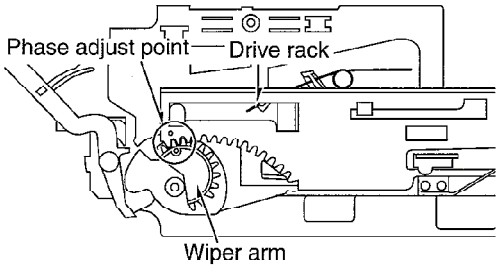


Fig. F5

TOP VIEW

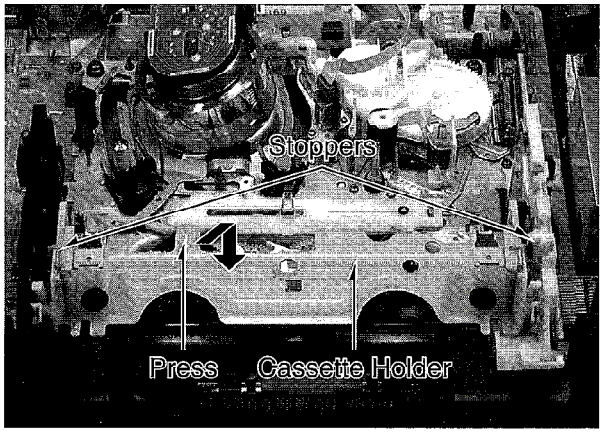


Fig. F6

(3) Assembly of Cassette holder

Install Cassette holder so that Cassette holder fits the groove of Waper arm installed in Main shaft (Fig. F6, F7).

TOP VIEW

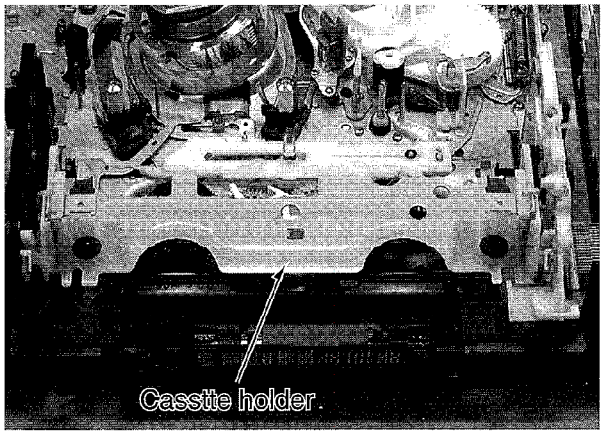


Fig. F7

(4) Assembly of Top plate

Install Top plate so that Top plate fits the groove of Left and Right side plate.

※ Fix Top plate by tightening screw when the tabs of Left and Right side plate broke (Fig. F8)

TOP VIEW

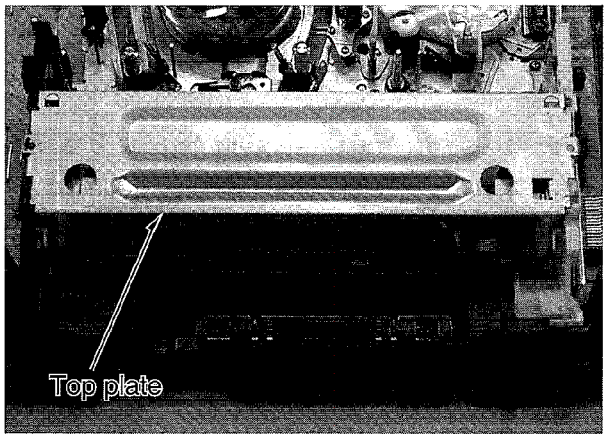
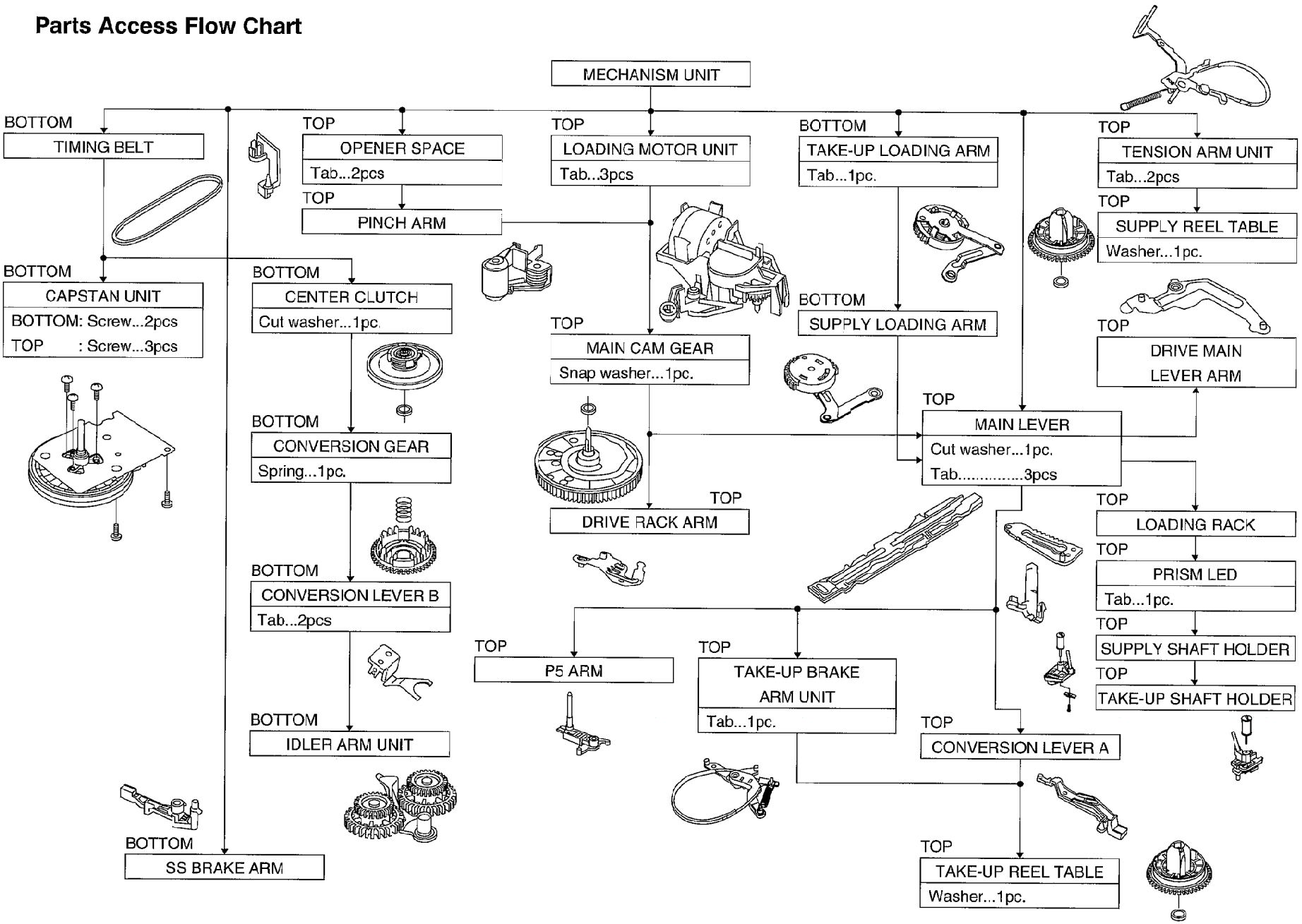


Fig. F8

(5) Install Front panel unit and Top panel

Parts Access Flow Chart



5. MECHANICAL ADJUSTMENT PROCEDURE

5-1. Tension post position adjustment

Equipment required: Hex. Wrench (VFK0326)
Specification: 50.5±1.5 mm

(1) Disconnect the AC plug.

(2) Remove the TOP PLATE.

(3) Turn the LOADING MOTOR until the loading completes.

(4) Adjust the hole of Tension Band Fastener by Hex Wrench until the distance between the Tension Post and the center of Supply reel table is 50.5±1.5 mm as shown in Fig. M1.

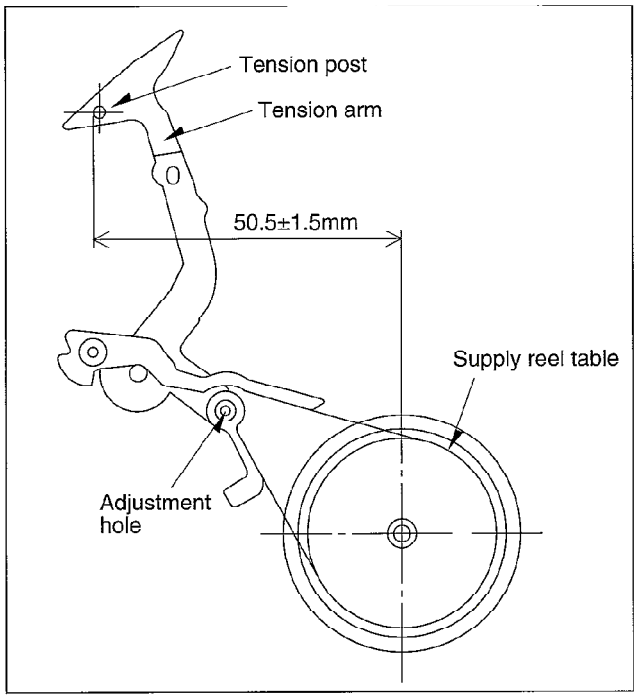


Fig. M1

5-2. Back tension adjustment

Equipment required:
Back Tension Meter (VFK0132)
VHS Cassette tape (180 minutes tape: PAL)
VHS Cassette tape (120 minutes tape: NTSC)
Specification: 22.5–27.5g

(1) Playback the cassette tape from the beginning and wait until the tape movement get the stabilization. (for approx. 10–20 seconds)

(2) Insert the Back Tension Meter into the path of a tape, and measure the back tension to be within specification as shown in Fig. M2.

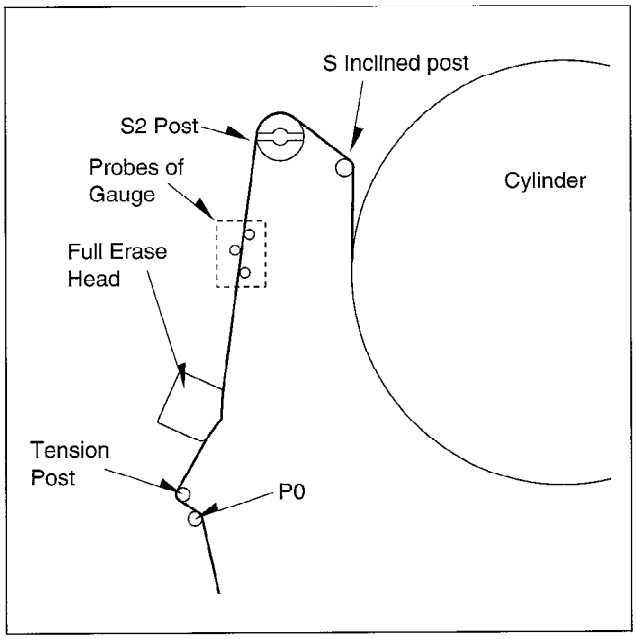


Fig. M2

(3) If it is out of specification, change the spring notch as shown in Fig. M3.

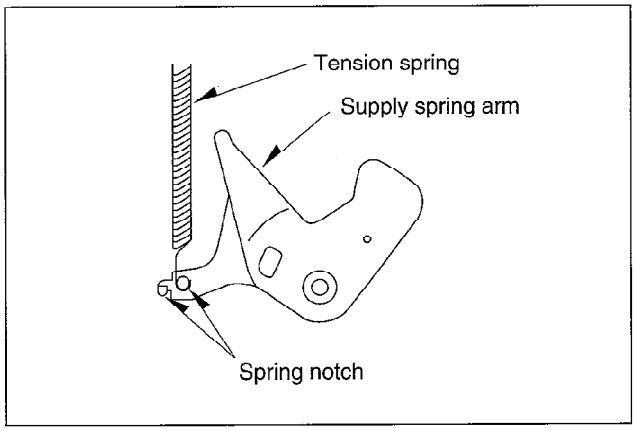


Fig. M3

5-3. P2 and P3 posts adjustment (PREADJUSTMENT)

Equipment Required:
Post Adjustment Screwdriver (VFK0329)

(1) Remove the Top Plate.

(2) Turn the Loading Motor until the unloading completes.

(3) Rotate the P2 and P3 Posts clockwise to the end. (Fig. M4)

(4) Rotate the P2 and P3 Posts twice counterclockwise. (Fig. M4)

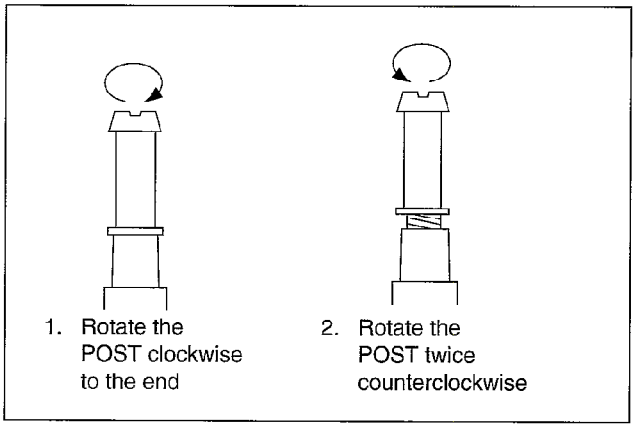


Fig. M4

(5) Playback the cassette tape and make sure that the edges of the tape are not curling at the bottom or top end of the P2, P3, and P4 Posts as shown in Fig. M5.

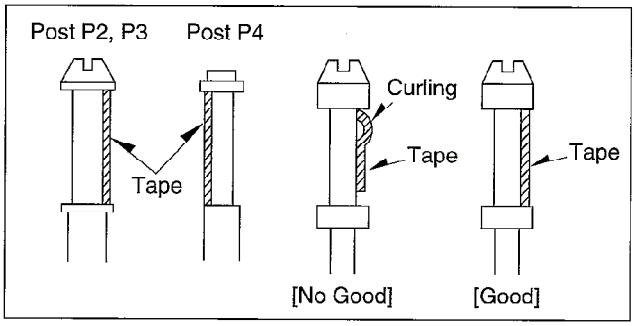


Fig. M5

(6) If the curling appears, readjusts the P2 and P3 Posts.

5-4. Tape interchangeability adjustment

Carry out the following procedures for Tape Interchangeability Adjustment to do it correctly and smoothly.

(1) P2 AND P3 POSTS ADJUSTMENT
(2) ADJUSTMENT OF P4 POST
(3) HEIGHT ADJUSTMENT OF A/C HEAD
(4) FINE-ADJUSTMENT OF A/C HEAD
(5) ADJUSTMENT OF X-VALUE (PREADJUSTMENT)
(6) FINE-ADJUSTMENT OF X-VALUE

If the Tape Interchangeability Adjustment is not perfect, repeat the above procedures from (1) to (6).

CAUTIONS: To make an Adjustment Mode for Tape Interchangeability, press the FF, REW and EJECT buttons simultaneously 3 times to set the Service Mode 2.

NOTE: Cleaning the Tape Transport path before adjusting of Tape Interchangeability. The detail portion is shown below.

P0 Post, Tension Posts, FE Head, P2 Post, Supply Inclined Post, Cylinder Unit, Take-up Inclined Post, P3 Post, A/C Head, P4 Post, Pinch Roller, Capstan Shaft, P5 Post. FE Head, Cylinder Unit, A/C Head and Capstan Shaft are more important parts and pay an attention to clean them.

5-4-(1). P2 AND P3 POSTS ADJUSTMENT

Equipment required:
Alignment Tape (PAL/SECAM: VFJ8125H3F)
(NTSC: VFM8080HQFP)
Post Adjustment Screwdriver (VFK0329)

(1) Connect the oscilloscope to the output of the Head Amp as shown in Fig. M6.

NOTE: To get a stable waveform of the Head Amp output (observation point TW3001 and TW2001 located on Main C.B.A.) on the oscilloscope, use the head switching pulse as a triggering signal as shown in Fig. M6.

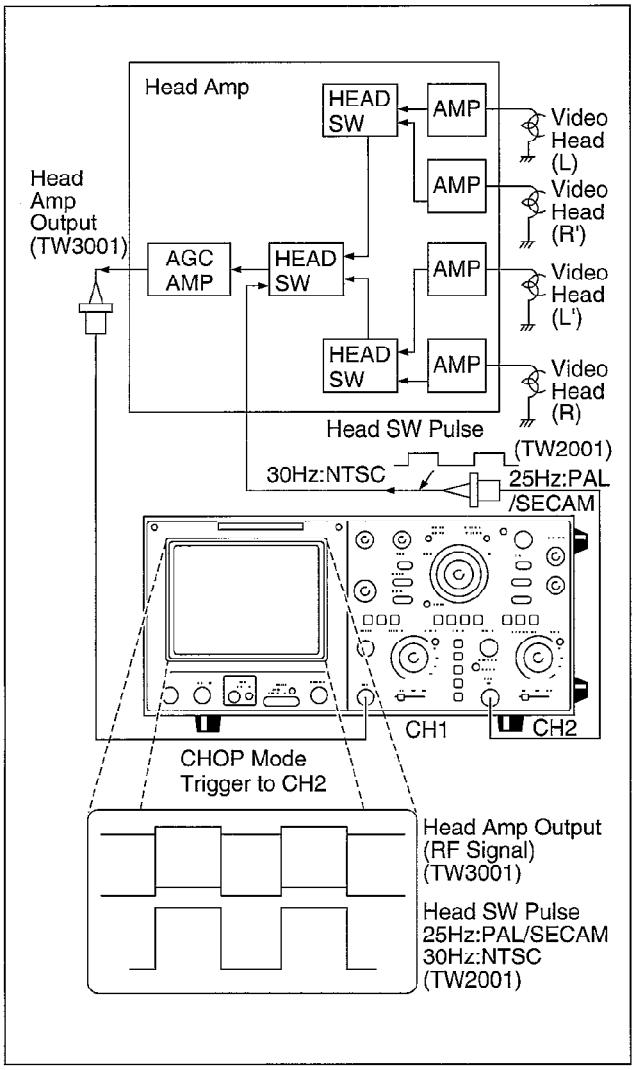


Fig. M6 Connect of Oscilloscope

(2) Playback the Alignment Tape.

(3) If the RF envelope appears like example "A" or "B" in Fig. M7, then adjustment of the tape guide post (P2: Entrance) is necessary.

(4) Adjust the tape guide post (P2) with the post adjustment screwdriver so that the RF envelope waveform at the entrance portion becomes flat as shown in Fig. M7 "C".

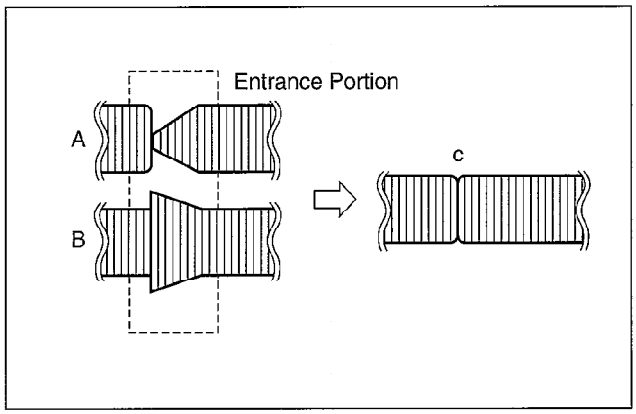


Fig. M7

(5) If the RF envelope appears like "D" or "E" in Fig. M8, then adjustment of the tape guide post (P3: Exit) is necessary.

(6) Adjust the tape guide post (P3) in the same manner as the P2 post so that the exit portion becomes flat as shown in Fig. M8 "F".

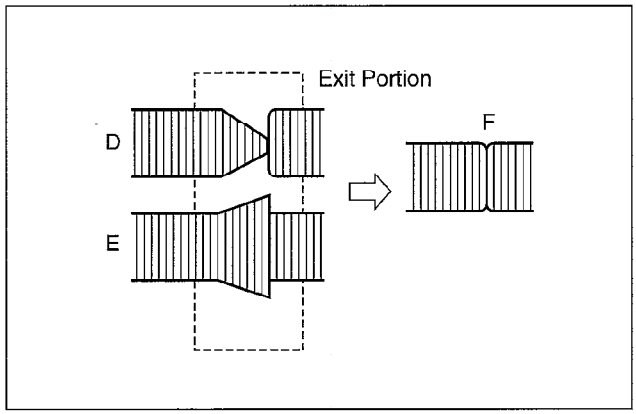


Fig. M8

(7) Keep pressing the tracking up/down (∧ or ∨) buttons on the remote controller unit. The output envelope should vary nearly parallel with other condition as shown in Fig. M9.

(8) Set the tracking control into center fix position by pressing the tracking up/down (∧ and ∨) simultaneously and adjust for maximum RF envelope, whilst being as flat as possible.

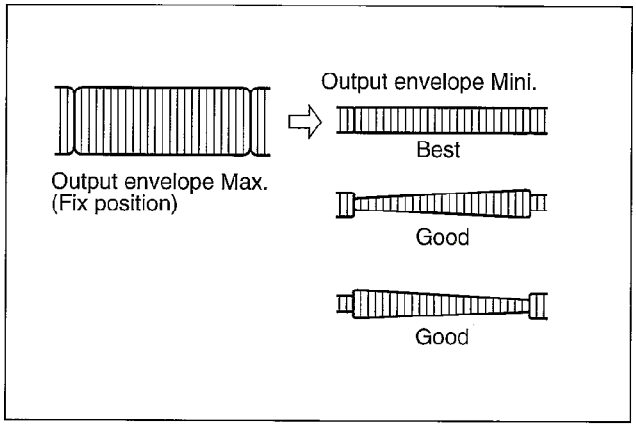


Fig. M9

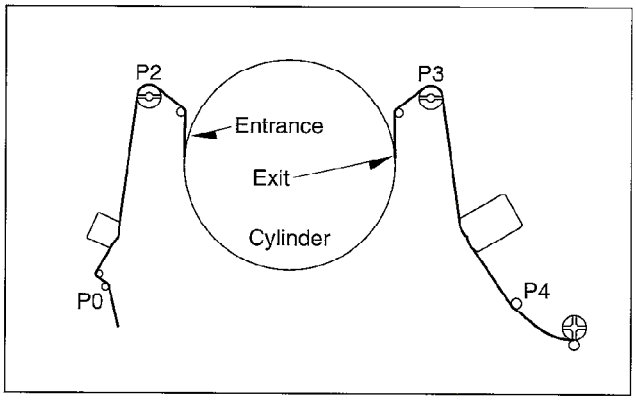


Fig. M10 Loading of Posts

5-4-(2). ADJUSTMENT OF P4 POST

(1) Install A/C Head on the Mechanism Chassis by one screw.

(2) Playback the Alignment Tape.

(3) Rotate the screw (A) or (B) until the wrinkle appears on the lower edge of tape at P4 Post.

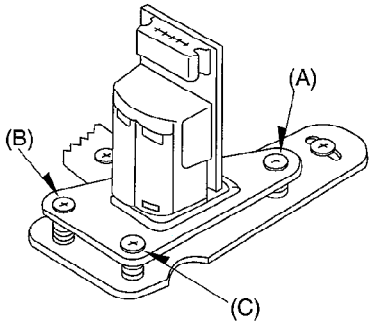
(4) Rotate the screw (A) or (B) until the wrinkle just disappears on the lower edge of tape at P4 Post.

(5) Connect the oscilloscope to audio output terminal.

(6) Rotate the screw (C) until audio signal is maximized.

NOTE: 1. The relation between the rotation direction of screws (A) and (B) and the condition of wrinkle on the lower edge at P4 Post as shown in Fig. M11.

2. Make sure that there is not the inclined wrinkle between P4 Post and Pinch Roller.



	SCREW (A)	SCREW (B)
So wrinkle appears on the lower edge of tape	COUNTER CLOCKWISE	CLOCKWISE
So wrinkle disappears on the lower edge of tape	CLOCKWISE	COUNTER CLOCKWISE

Fig. M11

5-4-(3). HEIGHT ADJUSTMENT OF A/C HEAD

<When moving the A/C Head up>

(1) Rotate the screw (A) counterclockwise until the wrinkle appears on the lower edge of tape at P4 Post.

(2) Rotate the screw (B) counterclockwise until the wrinkle just disappears on the lower edge of tape at P4 post.

(3) Rotate the screw (C) counterclockwise until the audio signal is maximized.

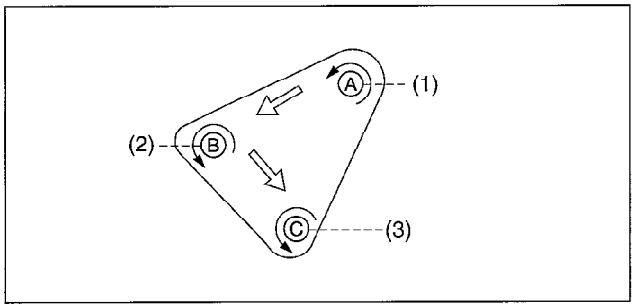


Fig. M12

<When moving the A/C Head down>

(1) Rotate the screw (B) clockwise until the wrinkle appears on the lower edge of tape at P4 Post.

(2) Rotate the screw (A) clockwise until the wrinkle just disappears on the lower edge of tape at P4 post.

(3) Rotate the screw (C) clockwise until the audio signal is maximized.

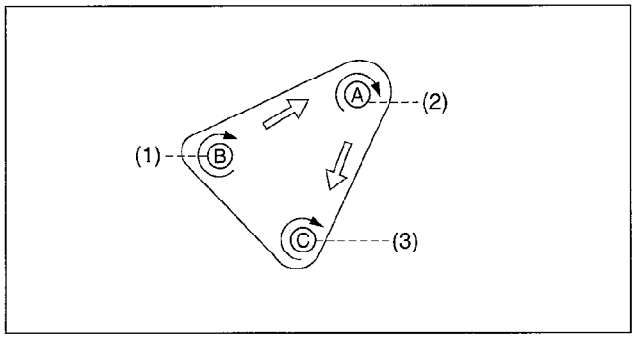


Fig. M13

5-4-(4). FINE-ADJUSTMENT OF A/C HEAD

(1) Connect the oscilloscope to the output of the Head Amp as shown in Fig. M6.

(2) Playback the Alignment Tape.

(3) Make sure that the condition of the wrinkle at P4 Post. If the condition of the wrinkle is out of specification, P4 Post adjustment has to be performed as follows.

Turn the screw (A) counterclockwise until the wrinkle appears on the lower edge of tape at P4 Post.

Turn the screw (A) clockwise until the wrinkle disappears on the lower edge of tape at P4 Post.

(4) Turn the screw (C) until the audio signal is maximized.

NOTE: Make sure that the audio output does not increase when push the upper and lower edges of tape around A/C Head.

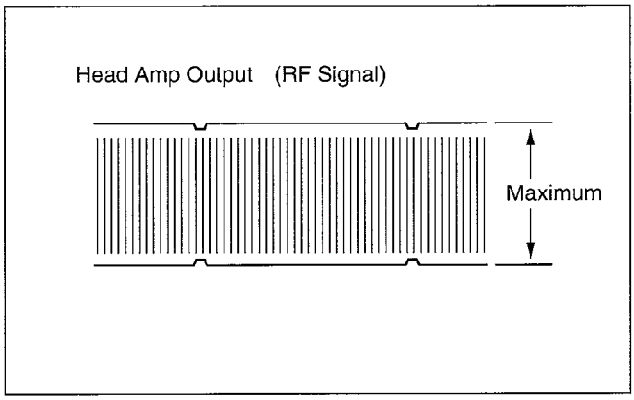


Fig. M14

5-4-(5). ADJUSTMENT OF X-VALUE (PREADJUSTMENT)

Equipment required:
Fine Adjustment Gear Drive (VFK0330)
Specification: Less than 15 msec.

(1) Connect the oscilloscope to the audio output and the video output. Both output signals should be fixed by the external trigger.

(2) Playback the Alignment Tape and set the tracking control into center fix position.

(3) Adjust A/C Head position by the Fine Adjustment Gear Driver (VFK0330) to meet the signal fault portion of the audio output and the video output signals (Less than 15 msec.).

(4) After meeting the signal fault portion, adjust A/C Head position by the Finc Adjustment Gear Driver (VFK0330) until the video envelope is maximized.

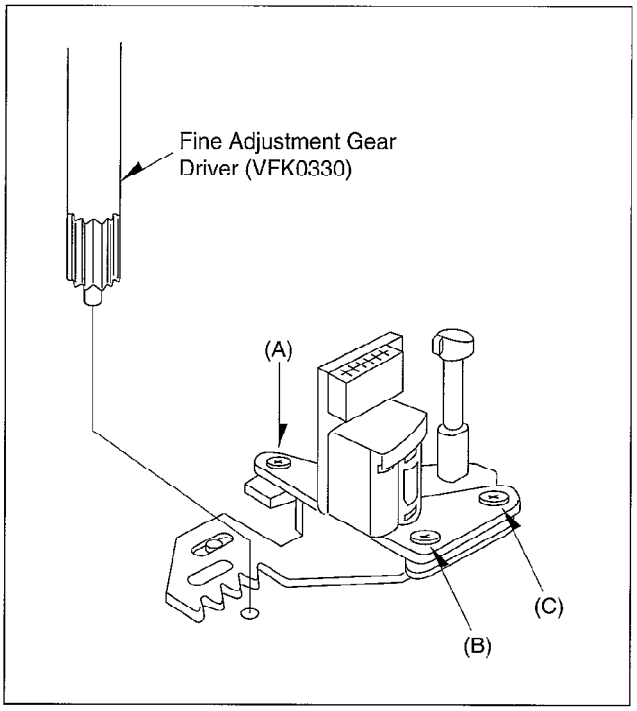


Fig. M15

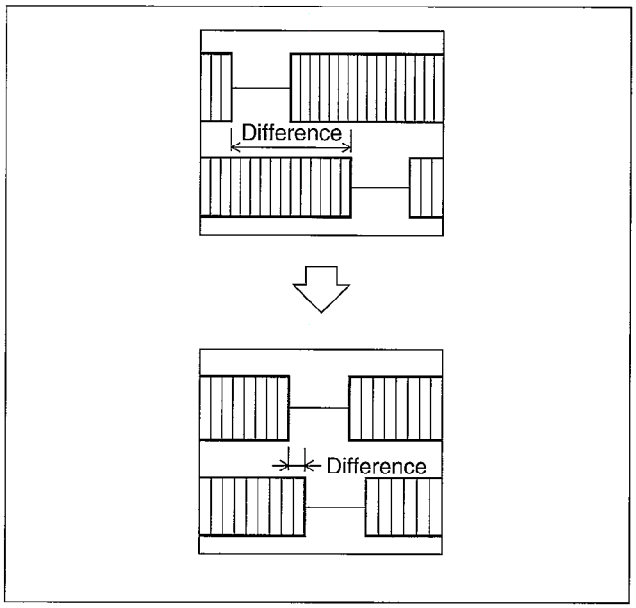


Fig. M16

5-4-(6). FINE-ADJUSTMENT OF X-VALUE

Equipment required:
Fine Adjustment Gear Drive (VFK0330)

(1) Connect the oscilloscope to the audio output and the video output. Both output signals should be fixed by the external trigger.

(2) Playback the alignment tape and set the tracking control into center fix position.

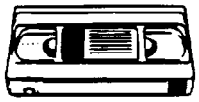
(3) Adjust A/C Head position by the Fine adjustment Gear Driver (VFK0330) until the video envelope level is maximized at the tracking center fix position.

NOTE: During X-Value Fine Adjustment, in case the video envelope level became 0, Preadjustment of X-value should be adjusted again due to it is possibility to vary the X-value adjustment.

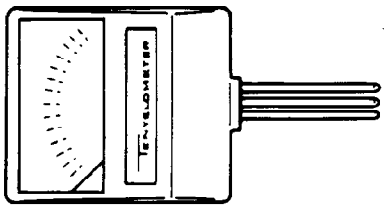
Servicing Fixtures & Tools

VFJ8125H3F
PAL VHS Alignment Tape

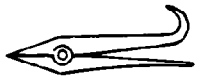
VFM8080HQFP
NTSC VHS Alignment Tape



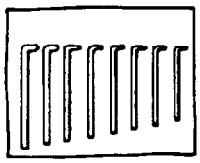
VFK0132
Back Tension Meter
(Tentelometer, Made in U.S.A.)



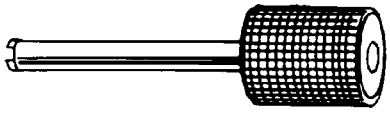
VFK0335
Retaining Ring Remover
(3mm/4mm)



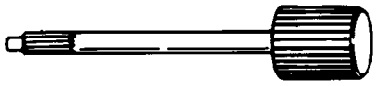
VFK0326
Hex. Wrench Set
(0.7, 0.9, 1.2, 1.5, 1.6, 2.0, 2.4, 3.0mm)



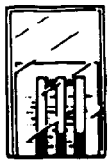
VFK0329
Post Adjustment Screwdriver



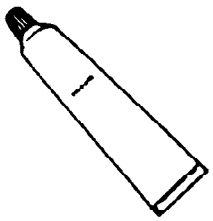
VFK0330
Fine Adjustment Gear Driver



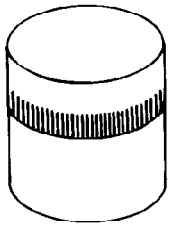
VFK27
Hand Cleaning Stick



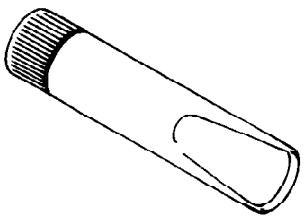
VFK1024
Morlytone Grease



VFK1298
Floil Grease



VFK1301
Silicone Grease



6. SELF-TEST INDICATION DISPLAY

This VTR has a self-diagnosis and display function. If the VTR detects trouble during installation or during use, one of the following fault indication codes will automatically appear in the VTR display. Fault indication codes are displayed in the form of a single English letter followed by two numbrs, as for example "H01".

Note: 1. The indication "U" is displayed on the FIP while power remains on.

2. Otherwise, the indication "H" or "F" is displayed on the FIP, and the power is automatically turned off

   When the power is turned on again, the fault indication code will disappear and the unit will retrun to normal display mode (either clock or counter is displayed).

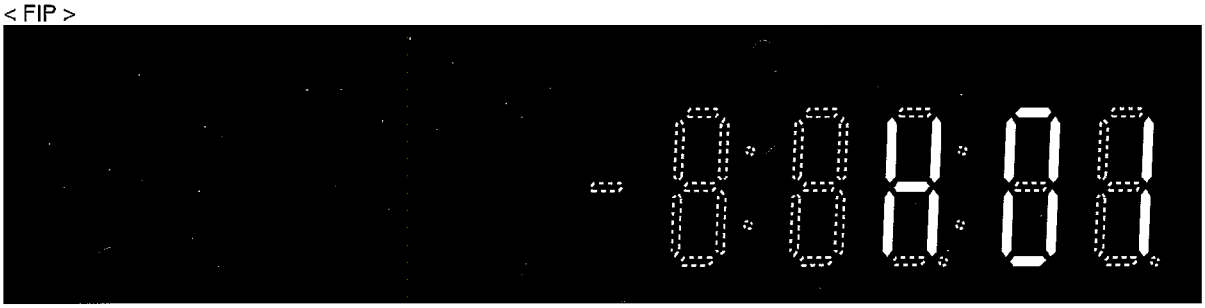
3. This fault indication code will be stored in the Timer microprocessor even with the AC plug disconnected.

   The two-digit number portion of the stored fault indication code can be redisplayed in the FIP's "second" display portion (the last 2 digits on the light) by placing the unit is Service Mode Number 2 when turning on Service Information Display as for example "01" or "02" etc.

   If a second error occurs, only the most recent error will be displayed and stored.

4. To erase the stored fault indication code data, Press FF, REW and EJECT buttons for 5 seconds.

< FIP >



INDICATION	CAUSE	REMEDY/CHECK
U 10	Dew formation.	Wait until the indication disappears.
U 11	Cylinder clogs during the play mode.	Cleaning the cylinder.
H 01	After cylinder lock is detected, the cylinder does not start rotating again even after tape unloading.	Check the cylinder motor drive circuit.
H 02	Cassette tape is not wound up during tape unloading except Eject mode.	Check the capstan motor drive circuit.
F 03	Mechanism locks during mode transition except Eject mode.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment. 3. Check the mode switch.
F 04	Mechanism locks during tape unloading.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment.
F 05	Cassette tape is not wound up during tape unloading in Eject mode.	1. Check the capstan motor drive circuit. 2. Check the Supply/Take-up reel pulse.
F 06	Mechanism locks after tape unloading in Eject mode.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment for cassette holder unit.
F 07	During recording mode recording signal is less than the normal condition.	Protection of the overcurrent flowing in transistor which produce the power supply for recording mode.
F 09	No communication of the main serial (between the system control and FIP driver control).	Check the system control microprocessor.

Fig. T1 Self-Test indication Display

7. SERVICE INFORMATION DISPLAY

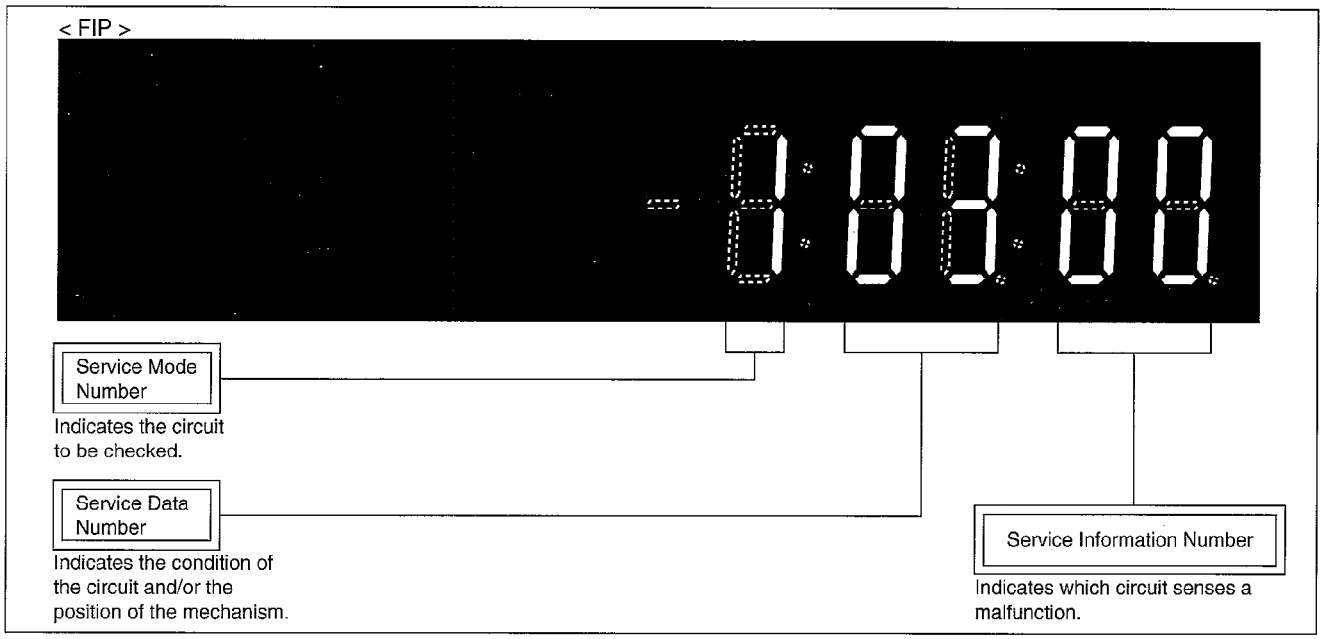

< FIP >
Service Mode Number
Indicates the circuit to be checked.
Service Data Number
Indicates the condition of the circuit and/or the position of the mechanism.
Service Information Number
Indicates which circuit senses a malfunction.

Fig. D1 Service Information Display

7-1 Purpose of Service Information Display

This information aids trouble shooting by indicating the source of the malfunction. The service mode number & service data number are used by the technician during repair while the service information can be used by consumer to diagnose malfunctions allowing the technician to provide a more accurate repair cost estimate and reduce repair time.

7-2. Turning on Service Information Display

Press FF, REW and EJECT buttons simultaneously.

In the Service Information Display, there are four digits divided into 3 functions.

The first digit indicates which of the 7 service modes that the unit is currently in.

MODE 1: Checks tape protection circuit.

MODE 2: Checks tape transport mechanism.

MODE 3: Checks mode switching operation.

MODE 4: Checks control buttons.

MODE 5: Checks capstan motor.

MODE 6: Checks cylinder motor.

MODE 7: Checks loading/unloading operation.

The second and third digits are service data which indicate the condition of the circuit or mechanism being checked.

The forth digit is the service infromation display. it is to be used by the consumer to help determine the source of a malfunction. The service information display operates independently of the service modes and stores the fault indication in memory for as long as AC power is not supplied.

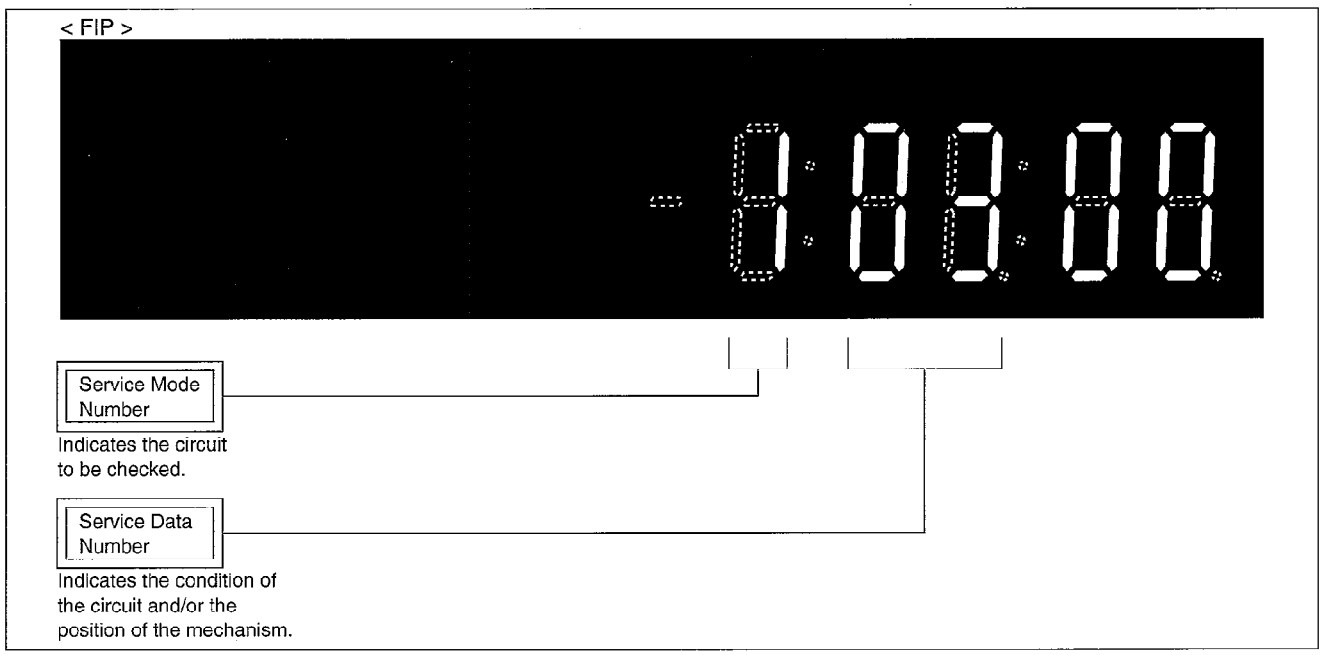

< FIP >
Service Mode Number
Indicates the circuit to be checked.
Service Data Number
Indicates the condition of the circuit and/or the position of the mechanism.

Fig. D2 Service Mode Number and Service Data Number on F.I.P.

7-3. Use of Service Modes

(1) Turn on Service information Display.

(2) To change Service Modes Press FF, REW and EJECT buttons simultaneously.

(3) Mode 0: Not used.

(4) Mode 1: Checks that the sensor LED, Supply & Take-up sensor circuits checks the circuits by blocking the light from the sensor LED to either or both Supply & Take-up Sensors. When the light is blocked to both sensors, "00" should be indicated on the service data number.
When the light is blocked to the supply sensor, "01" should be indicated.

(5) Mode 2: Checks the mode switch circuit while indicating mechanism position.
Service Data Numbers indicate the position of the mode switch and there by the mechanism position.

(6) Mode 3: Checks that mode switch circuit operations have been completed.
Service Data Number should indicate "00" after each mechanism operation is completed.

(7) Mode 4: Checks the operation circuit.
Indicates if SYSTEM CONTROL IC receives the operating commands from the mode buttons and/or remote controller.

(8) Mode 5: Checks the capstan motor circuit.
Indicates if the SYSTEM CONTROL IC has received the command to rotate the capstan motor.

(9) Mode 6: Checks the cylinder motor circuit.
SYSTEM CONTROL IC has received the command to rotate the cylinder motor.

(10) Mode 7: Checks the loading/unloading operation.
The loading motor rotates for loading operation when the "PLAY" button is pressed.
The loading motor rotates for unloading operation when the "STOP" button is pressed.
This mode can be displayed indefinitely until the OPERATE button is pressed.

<NOTE> Refer to Fig. D5 for details of Service Data Numbers.

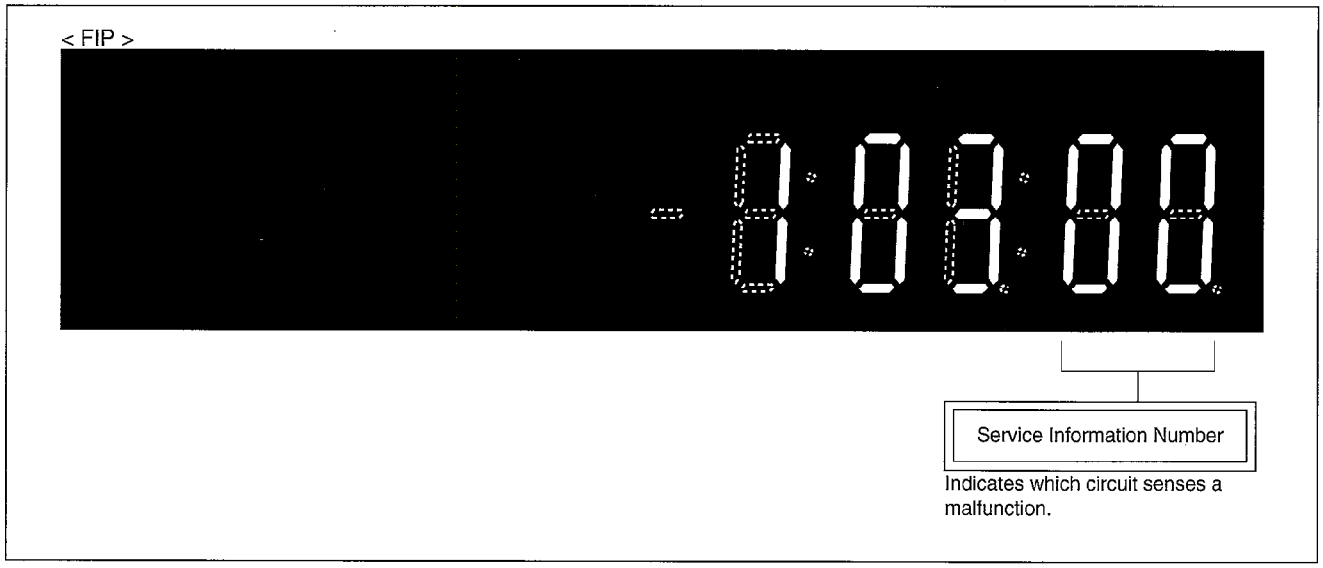


Fig. D3 Service Information Number on F.I.P.

7-4. Service Information Number

Refer to Fig. D4 for details of Service Infromation Number.

NOTE: The Service Information Number display is independent of the service mode display. The Service Information Number will be stored as long as AC power is not supplied (If can be displayed in the Service Mode 2.)

If a second error occurs, only the most recent error will be displayed.

Service Information Number	Malfunction
00	Normal condition (No problem)
01	Cylinder stop
02	Tape reel stop
03	Stop at position other than 04 or 06
04	Stop during unloading
05	Fault capstan rotation
06	Stop during Cassette-in/Eject operation
09	Fault of the main serial communication (Between system control and FIP driver)

Fig. D4 Detail Service Information Number

7-5. Test Mode

When the test terminals are shorted during turning off condition, the following operation will be performed after AC power is applied. Test Mode Information will be displayed on FIP insted of lincar counter.

(1) Power will be turned on automatically when AC power is applied.

(2) The direct operation of buttons are able to be performed.

(Examle) PLAY⟷REC, REC⟷EJECT

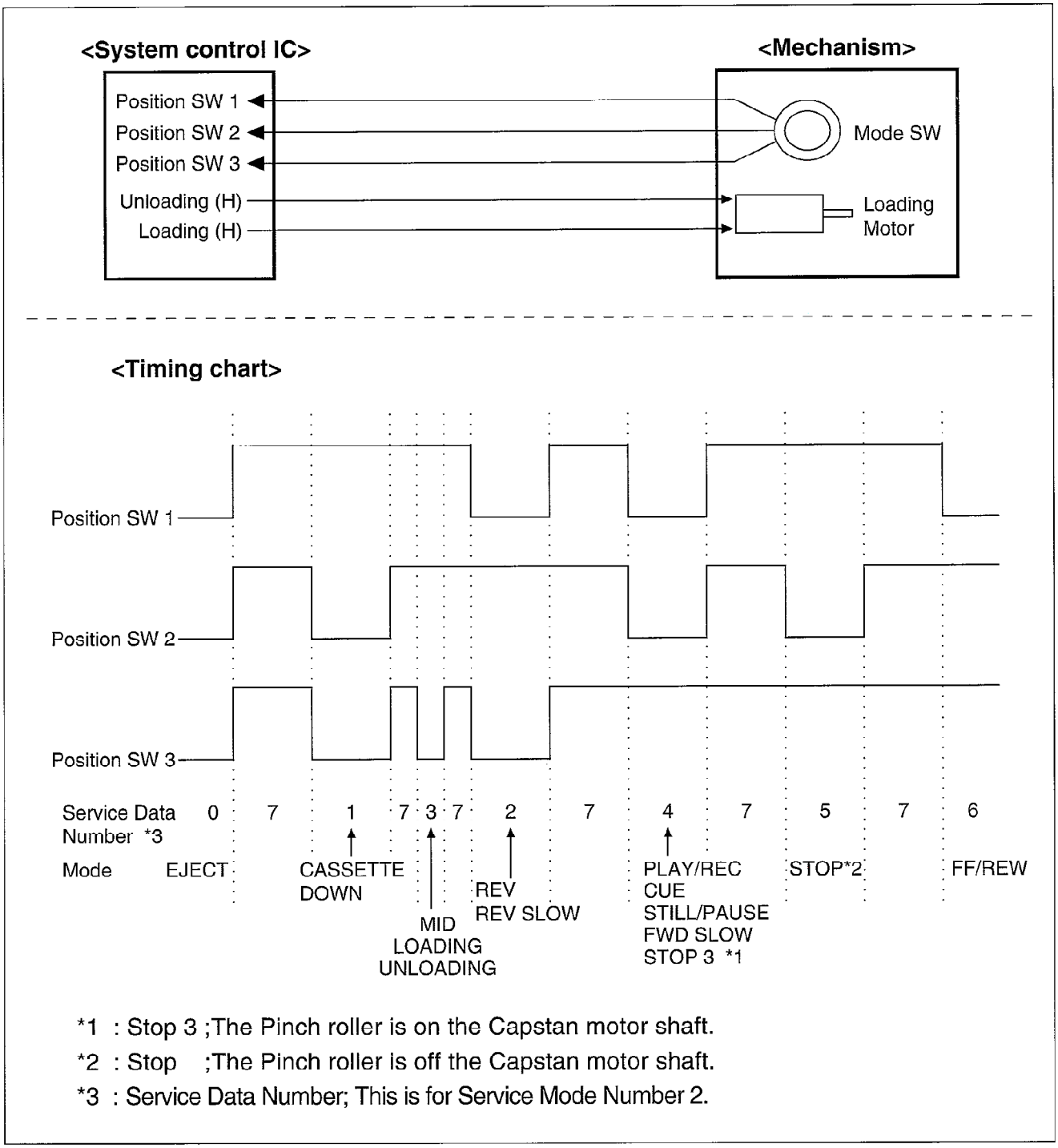
Service Mode Number	Note for checking Service Data Numbers	Service Data Numbers	Indication	Remarks
1	—	00	No light detected at either sensor	Tape not required.
		01	Tape beginning Light to Supply photo sensor is blocked.	
		02	Tape end Light to Take-up photo sensor is blocked.	
		03	Light detected at both sensors.	
2	—	00	EJECT	Tape required *1. STOP3: Pinch roller is on Capstan motor shaft. *2. STOP: Pirtch roller is off Capstan motor shaft.
		01	Cassette down	
		02	REV, REV SLOW	
		03	Loading/Unloading	
		04	PLAY, REC, STILL, PAUSE, CUE, FWD SLOW, STOP3*1	
		05	STOP*2	
		06	FF/REW	
		07	Intermediate position	
3	Disregard service data displayed until mechanism operation is completed. Then the display should indicate "00".	00	Any display other than "00" indicates a fault in the mode switch circuit or system.	Tape required.
4	Display only when the operating button is pressed.			Tape not required.
5	Left digit only, disregard Right digit display.	8 1 Left Right Digit Digit	8, 9, u, A, —, n, L and no display indicate that the Capstan motor "PLAY" command received by System control microprocessor.	Tape required. If a symbol other than those listed is displayed, a mulfunction in that circuit is indicated.
	Right digit only, disregard left digit disoaly.	8 7 Left Right Digit Digit	1, 2, 3, 4, 5, 6, 7 indicate that the Capstan motor "CUE, FF, FWD SLOW" commands received by system control microprocessor.	
	Right digit only, disregard left digit display.	8 — Left Right Digit Digit	8, 9, u, A, —, n, L and no display indicate that the Capstan motor "Reverse, REW, Reverse Slow" commands received by system control microprocessor.	
6	Left digit only, disregard Right digit display.	1 0 Left Right Digit Digit	1, 3, 5, 7, 9, A, n and no display indicate that the cylinder motor "ON" command received by system control microprocessor.	Tape required. If a symbol other than those listed is displayed, a mulfunction in that circuit is indicated.

Fig. D5 Service Data Display and Indication

7-6. Timing chart from Mode SW to System control IC

System control IC senses the mechanical position through the Mode SW.

Fig. D6 shows the timing for service mode number 2.



*1 : Stop 3 ;The Pinch roller is on the Capstan motor shaft.

*2 : Stop ;The Pinch roller is off the Capstan motor shaft.

*3 : Service Data Number; This is for Service Mode Number 2.

Fig. D6 Timing chart of Mode SW

8. SYSTEM CONTROL CIRCUIT & MECHANISM CONTROL CIRCUIT

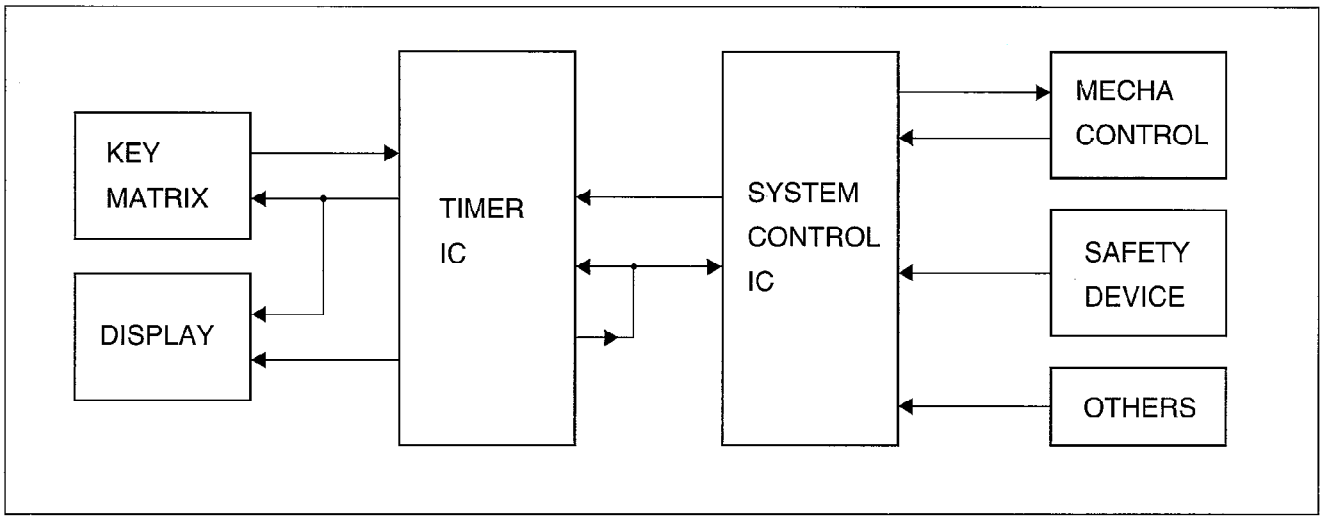


Fig. S1 Overall Block Diagram of System Control Circuit

8-1. STOP3 Specification

(1) The STOP3 is the playback stand-by mode.

(2) The unit is put into the STOP3 position after tape loading if the cassette tape does not have a clear leader tape.

(3) If the unit is in the STOP3 position when the power is switched off (included the Timer stand-by mode), the unit goes to the STOP position.

(4) If the cassette is in the unit when the power is turned on, the unit goes to the STOP3 position.

(5) When the cassette tape has clear leader tape, the unit is in loading mode after winding up the clear leader tape by Take-up reel at the cassette down position and the unit goes to STOP3 position.

8-2. Stand-by in the STOP3 position

(1) The unit goes to STOP3 position when the Stop mode is selected during the Play or Rec operations. The unit then loosens the tape tension by performing the Reverse Slow.
The Reverse Slow corresponds to the FG 40 pulses of the capstan (irrespective of SP/LP modes). The cylinder continues to rotate.

(2) After about 10 minutes in STOP3 mode, the unit shifts to the Stop position and the cylinder continues to rotate.

(3) After about 10 minutes in STOP mode, the unit stops the cylinder rotation.

8-3. Supply and Take-up Sensors

Supply and Take-up photo transistors are used to sense the beginning and end of a tape. The tape has transparent leaders at the beginning and end.

When these transparent leaders enter the tape transport path, they allow infrared light from the sensor LED to reach either one of the tape end sensors (photo-transistor).

If the Take-up end sensor detects the light, the microprocessor SYSTEM CONTROL IC places the VCR in the Stop mode and then performs a short Cue.

If the Supply end sensor is triggered, the microprocessor activates the Stop mode and the Rewind mode. The Rewind mode continues until the Take-up end sensor detects the end of the tape. The tape beginning is detects by a low signal at SYSTEM CONTROL IC Take-up photo terminal. The tape end is detected by a low signal at SYSTEM CONTROL IC Supply photo terminal.

If the light is received at both sensors at same time, the cassette is ejected.

<Operation after detecting the beginning and the end of tape>

Mode	Detection of the beginning	Detection of the end
Power on→off	Short CUE	Short REW
Cassette in	Short CUE	Short REW
Loading	Short CUE	Short REW
FF/CUE	——	Auto REW
REW/REV	Short CUE	——
PLAY, REC	——	Auto REW
SLOW	——	Auto REW
Timer REC	——	Power off

Both ends of tape detection (tape cut, no cassette),

(1) Cassette in: The cassette tape is ejected

(2) Other mode: The unit goes to Stop mode and it is impossible to operate except EJECT key.

(3) Timer REC: Power is turned off after short CUE is performed

8-4. Safety Tab Switch

A recorded video cassette can be protected against accidental erasure by breaking off the tab on the cassette. The cassette can now only be used for playback. To be able to record on the cassette, cover the hole with adhesive tape. If the safety tab on the cassette has been removed, Safety Tab Switch is off (open) and high signal is supplied to SYSTEM CONTROL IC Safety Tab terminal. The SYSTEM CONTROL IC will not go into the recording mode and automatically places the VCR in the playback mode.

8-5 Dew Sensor

If excessive moisture or condensation is present inside the machine (an internal humidity of more than 98%) the unit will stop if running. Until the moisture level decreases only the Eject mode will operate. To sense the humidity, a dew sensor is used. The sensor is a special variable resistor which change resistance with ambient humidity.

The sensor ranges in resistance from about 5K ohm at 90% humidity to about 50K omh at 98% humidity. Normally, the voltage across the sensor is low because of its low resistance.

But if moisture condenses inside the unit, the SYSTEM CONTROL IC voltage of Dew terminal increases to indicate a Dew condition.

Tape	Mode	Dew sensor ON	Dew sensor OFF
OUT	Power	Compulsory Power on	Power off
	Dew indication	Indicate "d" and "U10"	No indication
	Cylinder	Rotating *1	Stop
	Key operation	Not possible *2	Possible
	Cassette in	Immediately a cassette is ejected after it goes to cassette down position.	Possible
IN	Power	Compulsory Power on	Power off
	Dew indication	Indication "d" and "U10"	No indication
	Cylinder	Rotating *1	Stop
	Key operation	Not possible *2	Possible
	Cassette condition	A cassette goes to down position and is in stand-by mode.	Stand-by mode at STOP3 position.

*1: When the cylinder locks in dew mode, it will be released until dew sensor is truned off.

*2: The keys which do not relate to the tape running operation, are able to be used.

Dew sensor on: During Dew formation is detected and 80 minutes after completion of Dew detection.

Dew sensor off: 80 minutes later after copmletion of Dew detection.

8-6. Setting time for each mode

The time is set on each mode in order to protect tape and capstan driver. When the setting time is over, the mode is gone to the next mode.

Mode	Setting time	Switching mode
STILL, PAUSE	Approximately 5 minutes	STOP
CUE/REV lock	Approximately 10 minutes	PLAY
SLOW, F ADV	Approximately 10 minutes	STOP

8-7. Operation of short CUE

Short CUE stops when the Take-up photo sensor detects the black portion of the tape.

However its sensor does not detect the black portion within 4.0±1.0 sec., the mode except Power on/off and Eject modes will be abe to be operated after the unit stops. This is same as the timer over oeration of the reel lock.

8-8. Loading/Unloading Mechanism lock

Loading and unloading times are set, and in case the mechanism locks during loading or unloading operation within the defined time, the unit detects the mechanism lock and loading motor reverses or stops.

Loading operation lock: Cassette tape is unloaded and ejected within 5 seconds.

Unloading operation lock: Power is truned off within 5 seconds.

8-9. Cassette loading/unloading lock

(1) Mechanism locks during the cassette in operation.

① Cassette tape is ejected approximately 2 seconds later when the mechanism locks during the cassette in operation.

② In case mechanism locks during eject operation, cassette tape is inserted and power is turned off approximately 2 seconds later.

③ When Mechanism locks during cassette in operation, power is turned off approximately 2 seconds.

In case the mechanism lock is released on thc way and cassette is ejected, the unit continues the normal operation.

(2) Mechanism locks during the eject operation.

① Cassette tape goes to cassette down position approximately 2 seconds later and power is turned off when mechanism locks during eject operation.

② Mechanism locks during cassette down operation, power is turned off.

8-10. Reel lock operation

When the Suuply or Take-up reel mechanism locks during the tape running, the following operation is performed.

FF/REW : Unloading and loading. The unit goes to CUE/REV mode.

PLAY/CUE/REC : Unloading till the cassette down position and loading. The unit goes to STOP3 position.

RVS PLAY/REV : Unloading till the cassette down position and loading. The unit goes to STOP3 position.

The reel pulse cycle is started to count after the mechanism mode is fixed.

In case the counted pulse cycle exceeds the defined value, the unit goes to STOP mode due to judge that lock of reel mechanism is detected.

<The value of reel lock detection time>

NTSC/SP mode

Mode	Speed (Ratio)	Time (S)
PLAY	±1	3.5
CUE/REV	±5	1.6

PAL/SP mode

Mode	Speed (Ratio)	Time (S)
PLAY	±1	3.5
CUE/REV	±5	1.6

The reel lock time in FF/REW mode is 800msec.

When the tape speed is less than 0.23m/s, reel lock is judged.

8-11. Cylinder lock

<Start rotation>

When the cylinder neither start rotating nor go to the stability rotation within 5 seconds, it is unloading under keeping the mode. In case the cylinder starts operating and stability rotation, the mechanism goes to STOP3 position.

If it is not possible, Power is turned off and cylinder trouble "H01" is displayed.

<During rotation>

The head switching pulse is supplied to the cylinder when the cylinder starts the stable revolution. In case the head switching pulse comes to the cylinder within 0.5 seconds, the cylinder lock is judged and the following operation is activated.

Timer REC: Power off

PLAY, REC: STOP

8-12. Mode transition

The relation between the present mode and operation key is shown in the following table.

PRESET MODE	OPERATION KEY							
	P SW	EJECT	STOP	REW	FF	PLAY	PAUSE	REC
P-OFF	P-ON	EJECT	——	——	——	PLAY	——	——
EJECT	P-OFF	——	——	——	——	——	——	——
STOP	P-OFF	EJECT	——	REW	FF	PLAY	——	REC
REW	P-OFF	EJECT	STOP	REV	FF	PLAY	——	——
FF	P-OFF	EJECT	STOP	REW	CUE	PLAY	——	——
REV	P-OFF	EJECT	STOP	——	CUE	PLAY	STILL	——
CUE	P-OFF	EJECT	STOP	REV	——	PLAY	STILL	——
PLAY	P-OFF	EJECT	STOP	REV	CUE	——	STILL	——
STILL	P-OFF	EJECT	STOP	REV	CUE	PLAY	PLAY	REC PS
REC	P-OFF	——	STOP	——	——	——	REC PS	*1
REC/PS	P-OFF	——	STOP	——	——	——	REC	——

*1: VISS WRITE

Pressing two keys simultaneously, the key operation is going to be ineffective.

In case the unit goes to CUE/REV lock mode by pressing FF/REW key lightly during Play mode, CUE/REV mode will be returned previous mode when FF/REW key is pressed more than 0.7 seconds.

8-13. Power on reset

When the power is turned on, the unit is going to reset and the following datas are cleared.

(1) Position switch data

(2) Operation mode data

(3) Prohibition flags

In case the mechanism is in cassette down position, tape slag is removed as the initial operation and the unit goes to STOP3 position.

8-14. Linear time counter operation

The counter value will be gone up/down by counting control pulse. As for NTSC system during Play/Rec mode, counter value goes up/down every 30 pulses. As for PAL system during Play/Rec mode, counter value goes up/down every 25 pulses.

8-15. Tape speed in CUE/REV mode

	NTSC	PAL
Standard	9 times	11 times

8-16. Automatic functions

(1) Automatic Power on

① Under power off, when a cassette tape is inserted, power is turned on automatically and cassette tape is loaded.

② Under power off and a cassette tape has been inserted, when PLAY key is pressed, power is turned on automatically and goes to PLAY mode.

(2) Automatic play

When a cassette tape removed safety tab is loaded, the mode goes into Play mode.

(3) Automatic rewind

When tape running is reached to the end of tape, automatically goes to Rew mode and stops when tape running will be reached to the beginning of tape.

In case of Timer recording, short Rew is performed for 2 seconds and power is turned off when tape running is reached to the end of tape.

(4) Power off and Eject

Under power off and a cassette tape has been inserted, when Eject key is pressed, a cassette tape is ejected and power is turned off

8-17. CUE/REV lock mode

When FF/REW key is pressed lightly (less than 0.7 seconds) during Play mode, unit goes into CUE/REV mode. To release CUE/REV mode, FF/REW key should be pressed more than 0.7 seconds.

8-18. FR (Forward/Reverse) search mode

When FF/REW key is pressed during FF/REW mode, unit goes into CUE/REV mode.

To release CUE/REV mode, FF/REW key have to be pressed.

8-19 FF/REW speed

Maximum tape speed is approximately 3.0 m/s during the stable running.

8-20 FF/REW time

The tape running from the beginning to the end of T-120 type (E-180 type) cassette tape is able to be completed within 150 seconds.

Panasonic

MATSUSHITA ELECTRIC

Printed in Japan